LEARNING MADE EASY

2nd Edition

Gardening Basics

for dummies®
A Wiley Brand

Plan and prep the garden of your dreams

Grow the best plants for your climate

Troubleshoot common plant problems

Steven A. Frowine
Author of *Orchids For Dummies*

National Gardening Association

Gardening Basics

2nd Edition

by Steven A. Frowine with the Editors at the National Gardening Association

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Gardening Basics For Dummies®, 2nd Edition

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Introduction

Aren't you lucky! You're entering or are already part of the most popular and rewarding lifelong hobby that exists — worldwide. Gardening is a common language that knows no national, socioeconomic, or age boundaries. It's a common thread that binds all of us together. Whether you're discussing your outrageous zucchini harvest of the previous year or sharing your secret tips for prizewinning roses, you've probably found that gardeners have an instant bond, no matter what their level of experience.

Because gardening is a huge topic that encompasses a wide field of cultivation interests and disciplines, it's impossible for anyone book to cover everything there is to know about gardening. However, when you're armed with the gardening basics, like those presented in this book, you're ready for just about anything that the art and science of gardening can throw at you.

Sure, gardening requires some exertion. But it's healthy exercise. It makes you feel a great sense of accomplishment when the flowerbeds are weeded, the bulbs are planted, and the seeds are sown. It's primal. And reaping the rewards of your labor — by cutting flowers for your dinner party or fresh herbs for your salad — is a special joy that makes the noisy, electronic stimulation that surrounds you (cars, phones, and the like) seem trivial. Gardening fosters a deep satisfaction that nurtures your body and soul. That's why this book, *Gardening Basics For Dummies,* 2nd edition, exists. In addition to giving you basic pointers on how to make your gardening as successful and rewarding as possible, it's a celebration of the art and sheer joy of gardening.

About This Book

In this book, I've tried to distill my more than 50 years of gardening experience as well as the knowledge of some of my other gardening friends, because everyone can discover something from each other.

I hope you find this book is fun reading: Sometimes gardeners can get way too serious about this pursuit. I've always felt that gardening is supposed to relieve anxiety, not add to it. After all, this is gardening, not brain surgery! Making a mistake (and you will) isn't a big deal. Gardens can recover quickly from our bumbling efforts to care for them. My main mission in this book is to bring you gardening success and the inimitable pleasure that comes from it. It's no fun if all your efforts end up in the compost pile.

In this second edition, look for the following:

- A new chapter on multiplying plants
- Revised and updated content in nearly every chapter
- More than 50 new or revised illustrations
- A color insert of great plants and climate maps for Canada and the United States
- A new Part of Tens chapter for northern gardeners

Following the classic *For Dummies* format, this book gives you the most basic gardening information you need, organized and presented in an easy-to-follow, modular manner. Although you can read from cover-to-cover, you don't have to. This book can function as a reference work, so you can jump in, find what you need, and get back to your stand of birch trees or the koi pond or the garden center or wherever else you'd like to be.

After reading this book, you may not be an expert, but you should be well on your way to taking on most gardening tasks with new confidence. Gardening is part science and part art, and how you mix them up is a very personal thing. After getting a handle on the basics presented here, you can move on to develop your own style and techniques that work best for you.

As you advance in gardening, you find that in certain branches of horticulture (like perennials, some trees and shrubs, and orchids), you're confronted with dreaded scientific names (usually Latin, sometimes Greek). People use such names in these plant categories for very legitimate reasons, and you can choose to follow the path to those reasons later. For now, I spare you that step by mostly using common names for the plants throughout this book. When I do provide the scientific name, I give common plant names first, followed by the botanical name.

Even though I sometimes use the word "dirt" in this book, I must say that I remember one of my horticulture professors admonishing my class when we used this word to describe soil. He always said, "Dirt is what you sweep off the floor. Soil is that miraculous material that you grow plants in."

Foolish Assumptions

Because you're reading this book, I assume that you're ready to really love gardening. Here are some other things I assume regarding your possible background and interest in gardening:

- You've seen other folks' gardens that have inspired you, so now you want to bring your own gardening skill to the next level.
- You're concerned about a fresh and organic diet and want to grow some of your own herbs, fruits, and vegetables.
- Your lawn is looking on the tattered side, so you want to spruce it up a bit.
- You've moved into a new place, and the landscaping is nonexistent or dreadful, so you want to change it.
- You love outdoor living and you want to improve the space around you.
- You like the idea of gardening but don't know where to start.
- You want to know how to multiply your own plants.

Icons Used in This Book

Icons are the cute little pictures that show up in the margins of the book, right next to certain blocks of text. Here's what those icons stand for:

REMEMBER

This icon points out some major ideas in the book — stuff well worth remembering. I also use this icon to point out garden lingo you may find a bit confusing and help you identify and clarify the most common terms.

TIP

The *Tip* icon flags notable gardening information that even experienced gardeners may not know. This info can save you time and frustration.

WARNING

This icon alerts you to possible problems to watch out for or avoid. These problems may result in injury or at the very least a bad gardening experience.

TECHNICAL STUFF

I use this icon to point out stuff that's interesting to read but is not essential to understanding the point I'm making.

Where to Go from Here

A great thing about *For Dummies* books is that you can start anywhere you want — one part or chapter doesn't depend on any other. For example, if you're interested in growing your own fruit, head right to Chapter 18. No need to start anywhere else! Scan the Table of Contents or the index, find a topic that piques your mind, and flip to that chapter.

That said, if you feel more comfortable getting a basic grounding (so to speak) in gardening before plunging right in, start with Chapter 1. If you're re-evaluating or starting your garden from scratch, then any of the other chapters in Part 1 are good places to begin. After that, where you go is really up to you, based on your most pressing gardening needs or pleasures.

Of course, keeping your plants alive and making them look their best involves a lot of preparation. You can then read the chapters in Part 1 if you really want your plants to grow, thrive, and look their absolute best. Spending time and effort in preparation at the outset will save you lots of time and effort down the line.

If you want to read more, go to `www.dummies.com` and search for "Gardening Basics For Dummies Cheat Sheet" to read a handy Cheat Sheet that you can refer to again and again.

1

Preparing Yourself (and Your Garden) for Planting

IN THIS PART . . .

Understand the important first steps to fully realizing your garden potential.

Examine all the types of flowering plants that add color and interest to your garden as well as trees, shrubs, and vines that are important garden components.

Design and create a landscape that is the envy of your neighborhood and make a plan that fits your needs, style, and budget no matter how big or small your property is and whether it's in the sun or shade.

Understand your climate and see how you can extend your growing season.

Give your plants what they need to grow and flower to their best.

Buy the right tools for the job and know how to use them.

IN THIS CHAPTER

- Understanding how plants are named
- Examining flowering plants
- Checking out trees, shrubs, and vines
- Managing your lawn

Chapter 1

Getting Ready for Gardening

No matter what your main gardening interest — be it growing vegetables, making your yard colorful with flowers, picking out just the right tree, or aspiring to have the most gorgeous roses on the block — chances are that you care most about the plants. Sure, gardening can also involve landscaping and lawn care (see the chapters in Part 3 of this book), or being able to grow your own food (Part 4), or just having a great excuse to play in the dirt (Part 5), but for most people, the plants make everything worthwhile.

Okay, yeah, I know, you already know you need to plan and prepare your soil to get your garden going, but you *really* just want to read about plants right now, right? In that case, the rest of this chapter is devoted to the most basic explanations of the kinds of plants you may encounter in the world of gardening. Later chapters in this book go into much more detail about the various types of plants, trees, bushes, and vines, but here I help you get a sense of how plants are similar and different — the first step in turning a brown thumb green. First, though, I explain a bit about names.

Playing the Name Game

What's in a name? For gardeners, plenty. Gardening is a blend of horticulture and botany, common names and high science, and the names can get a bit confusing. Whether you're looking at plant anatomy or simply want to know what to call a plant, understanding a bit about naming can help you wade through the garden center aisles, ask better questions, and treat your plants right.

Getting used to plant nomenclature

Whenever you're talking about plants, knowing how they're named can help you avoid getting tangled up in the Latin or Greek. Generally, when looking for plants and flowers, you encounter two types of names — botanical and common. Read on for some info on how the naming system works, and then carpe diem — *pluck the day!*

TECHNICAL STUFF

There is a reason why Latin and Greek are the languages used in naming plants. Latin and Greek have always been the language of scholarship, for scientists worldwide. They're unchanging, unlike the modern, daily-use language.

Botanical names

The *botanical name* is the proper or scientific name of a plant. It consists of two parts and is called a *binomial* (bi *equals two,* nomial equals *name*):

- **The species name:** The species name is kind of like your own first name (except it comes last in a plant's botanical name).
- **The genus name:** The genus name is similar to your family name (except in botanical names, it comes first).

For example, in the plant name *Hosta undulata, Hosta* is the genus name, and *undulata* is the species name. *Hosta* describes an entire genus of popular, mostly shade-loving plants named hostas, and *undulata* describes the type of hosta it is — a hosta with an undulating leaf shape.

TECHNICAL STUFF

The singular and plural for the word *species* is *species.*

Sometimes the botanical name has a third name, right after the species name, known as the botanical variety. A botanical *variety* is a member of the same plant species but looks different enough to warrant its own name, such as *Rosa gallica* var. *officinalis.*

Still another botanical name that sometimes comes up is the *cultivar*, short for cultivated variety. Cultivars are usually named by the people who developed or discovered them, and they're often maintained through asexual or vegetative propagation for example by cuttings, seed propagation, or the most-modern method of raising large numbers of identical plants in test tubes, called *tissue culture.* In other words, they're cultivated (humans grow, improve, and develop them). An example is *Lychnis coronaria* 'Angel's Blush.' You can use or modify some of these techniques to make more plants yourself. For more details about how to, see Chapter 10.

REMEMBER

A *hybrid* plant is the result of the cross-pollination between two genetically different plants, usually of the same species but different varieties. This combination can happen with human intervention, when the object is to make a new or improved plant or it can occur naturally through bee pollination between two different plants.

Botanical names are more common with some types of plants than others. For instance, you frequently run into them with herbaceous plants, trees, and shrubs but much less so with roses, annuals, and vegetables. You can find botanical names on the labels and in many garden references.

Even though botanical names can be a bit intimidating and sometimes a pain to remember, they're much more definitive than common names. They're recognized internationally so anywhere you are in the world, fellow plant lovers will know what plant you're talking about.

Common names

Common names are what you're most likely to encounter when shopping for plants to put in your garden, and they're what you mostly encounter in this book. You can find these names prominently displayed on seed packets or on seedling trays of plants that are for sale. They're kind of like botanical nicknames that gardeners use to describe a certain type of plant without going into a great amount of detail. For example, the *Hosta undulata* fits into the genus *Hosta*, so most gardeners merely refer to these plants under the common name of hostas. And you may know that *Hemerocallis* is actually the genus name for the common daylily, but chances are that most gardeners you encounter just call them daylilies.

SHARING NAMES WITH DISTANT RELATIVES

If you want to be absolutely sure of the plant you're buying, then remember that the botanical or scientific name, including the cultivar name, is the most exact one. Some common names, like *common basil,* are very specific. All common basil has the same genus and species, *Ocimum basilicum.* However, a common name like daisy is so general that it may not be very helpful. This term can apply to plants very faintly related found in various genera (genuses). For instance, a "daisy" can be an African daisy (*Arctotis* or *Gerbera*), Dahlberg daisy *(Dyssodia tenuiloba),* English daisy *(Bellis perennis),* painted daisy *(Chrysanthemum coccineum),* Shasta daisy *(Leucanthemum superbum),* and many others. If you're shopping by common names, read labels to make sure this particular kind of plant can grow for you.

The biggest problem with common names is that the same plant can have many different common names depending on what part of the United States or the world you live in.

Anatomy 101: Naming plant parts

Beyond recognizing the names of plants, knowing the various parts of plants is also useful. Figure 1-1 shows a nice, healthy perennial plant with the basic parts displayed. Botanists use many more descriptive and detailed names for plant parts, but you have enough to remember without getting further confused! You probably already know most of the common ones, but keep these parts in mind, because you need to know them to understand some of the things I discuss in the rest of this book and to speak the language with fellow gardeners. In the figure, the *taproot* (not all plants have this) is the main root of the plant; the *stolon,* or *runner,* is a horizontal stem that spreads underground, sending up more plants as it goes; many groundcovers (pachysandra, ivy, ice plant) operate this way, as anyone who has tried to tug up a patch well knows!

REMEMBER

Propagate is a term commonly used in horticulture to describe the process of reproducing or multiplying plants. I discuss it more detail in Chapter 10.

When you know the parts of plants and the difference between all the plant names you run into, you may be ready to get the lowdown on the types of plants out there!

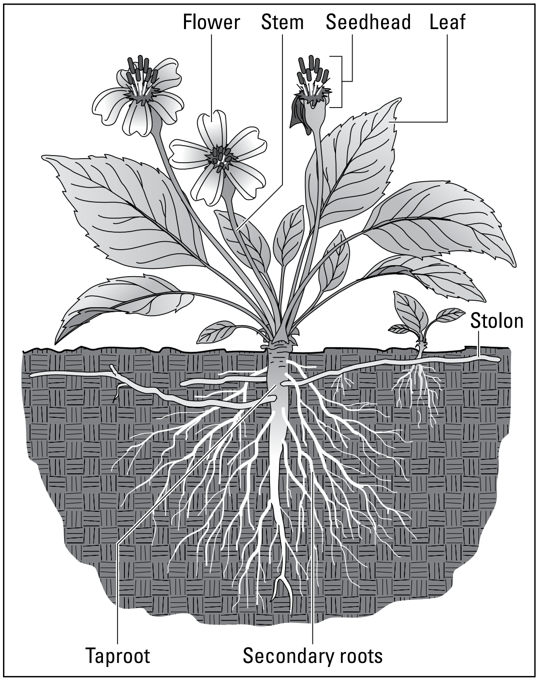

FIGURE 1-1: The basic parts of a perennial plant, above and below ground.

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Beautifying with Flowers (and Foliage)

Flowers are often the first thing that comes to mind when people think of gardening and the first thing people plan to grow when they want to beautify their surroundings. Flowers are marvelous because they come in a vast array of sizes, colors, and shapes (see Figure 1-2), and no matter where you live, at least one kind of flowering plant can grow there. Even the volcanic crater of Haleakala, on the island of Maui, is home to a flowering plant: the rare silver sword.

Flowers are more than merely the beautiful display they put on, however. If you know the different types of flowers out there, you can take full advantage of displaying them in your own garden. Read on for info on annuals and perennials, as well as a bit on bulbs and roses.

Amazing annuals

You may already know what annuals are without realizing that you know! These beauties are the flowers, arrayed in flats and pots, for sale every spring down at the garden center — everything from geraniums to impatiens to marigolds. You bring them home and plunk ’em in the ground, and they get right to work, delivering pretty much continuous color all summer long. When fall comes, they start to slow down (some may even go to seed); cold weather eventually causes them to wither and die. Game over. (That is, unless you live in a frost-free climate; in this case, your "annuals" may become perennials. See the section, "Perennial plants," later in this chapter for more information.)

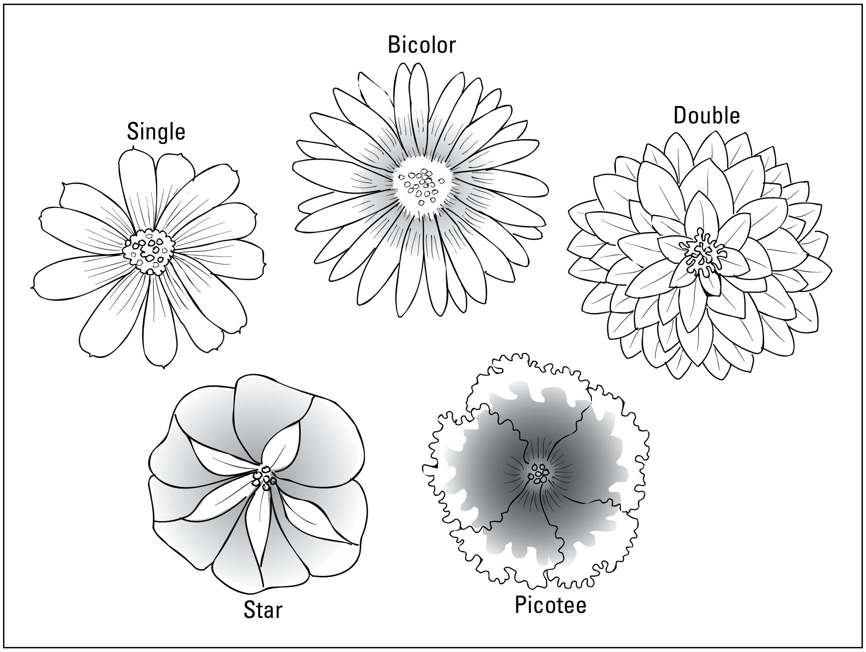

FIGURE 1-2: Flowers come in a wide variety of sizes and shapes.

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For the brief time annuals are growing and pumping out flowers, you get a lot of bang for your buck. A great deal of selection and breeding refinements over the years have made these plants totally reliable. They're full of exuberant energy and hard to kill. Indeed, some of them keep blooming their cheery heads off even when you neglect them. They provide reliable garden color even as perennials cycle in and out of bloom.

Some gardeners have been known to sneer at good old annuals. They're boring. They're *too* perky. They're "plastic plants." These folks may or may not have a point, but hey, annuals are hard to beat if you want a colorful garden.

In the end, the main drawback of annuals is economic. You have to buy new ones every spring. If you're planting a wide area, running out to buy more year in and year out can get expensive. Time may also be an issue for you — you may grow sick and tired of getting down on your hands and knees and replanting. (If you're getting to that point, consider a longer-term investment, planting perennials.)

You can use annuals

- To fill an entire flowerbed (this popular use is why some places call annuals *bedding plants*)
- To add to container displays — in pots, window boxes, patio planter boxes, and more
- To fill a hanging basket
- To edge a walkway
- To insert reliable color in a perennial bed
- To decorate a vegetable and herb garden
- To cover over or at least distract from a fading spring bulb display
- To add summer color to your flower beds when the perennials are done blooming
- To fill in places where perennial plants haven't filled in yet — the added advantage of covering ground so opportunistic weeds can't move in

If the info you want on annuals isn't in the upcoming sections, you can get an in-depth look in Chapter 6.

Caring for and feeding annuals

Luckily, taking proper care of annuals is not rocket science. For the most part, annuals are easygoing, because they're bred to be quite tough and durable. Many can withstand some neglect and still be productive — not that I recommend ignoring them!

REMEMBER

Without a doubt, water is an annual's number one need. All that lusty growth and continuous flowering requires fuel. A thirsty plant can't sustain the show for long. Regular, deep soakings are best because they reliably supply water to the roots, which leads to a stress-free life of consistent growth and bud and bloom production. (Note that a drying-out plant favors its roots and, to a lesser extent, its leaves, in a bid for survival, automatically jettisoning its water-hogging buds and petals.) Note that annuals grown in pots, hanging baskets, or window boxes dry out much faster than ones grown in the ground. See Chapter 4 for more info on watering.

You can't deny that regular doses of plant food or fertilizer significantly boost your annuals (make sure you apply it according to directions). For best flowering fertilize every six weeks with a granular or organic fertilizer or add a water-soluble fertilizer to your sprinkling can every week or so. The leaves become healthier and greener, and you end up with more buds and flowers. Chapter 4 contains information on fertilizer as well.

The rather unromantic term of *deadheading* simply refers to the practice of pinching or cutting off spent flowers. Your annuals look nicer when you do this, of course, but removing the flowers also serves another purpose: It thwarts the plant from the energy-intensive process of producing seeds, and the plant responds by diverting its energy back into making more flowers.

Raising annuals from seed

Of course, you can raise annuals from seed, which is the most economical approach, especially if you want to grow large quantities for a display garden. Some are simpler to grow than others. Annuals with very small seeds like snapdragons and begonias are a bit more of a challenge because you need to start them indoors in a bright windowsill or under fluorescent lights.

Just buy the seed packets in late winter and sow them in flats or pots (particular directions are always on the back of the packets). Raise the seedlings indoors until spring weather comes and the soil warms up and all danger of frost is past; then move the plants outside.

Some annuals are so fast-growing that you can sprinkle their seeds on good soil in late spring, right outside, and they'll quickly sprout and grow. This group includes popular ones like zinnias, marigolds, and nasturtiums. This process may require you to do some thinning at some point, but otherwise, it's dead easy. Again, consult the back of the seed packet for details. One advantage to this tack is that you can grow some more unconventional or rare annuals. It certainly makes for a more interesting garden! Refer to Chapter 10 for more about growing plants from seed.

Beholding a one-time show

The very definition of an *annual* — a plant that goes from seed to flowering to death in one season, completing its entire life cycle in short order — states that annuals are a one-time show. When it's over, it's over. (Except when it's not; if you garden in a mild climate, many annuals merely slow down for the winter but survive. Snapdragons and many salvias are examples.)

If you garden in a cold climate, you can try digging up some favorites or bringing potted annuals inside. Keep them in a nonfreezing place, out of direct sunlight, and let them rest. Cut back all spent growth. Start reviving them with water and plant food when spring returns.

ANNUALS THAT AREN'T REALLY ANNUALS

False annuals are plants with tropical origins, or ones whose parents hail from the tropics, which means that they're actually perennial — more long-lived — somewhere, somewhere warmer, somewhere far away like Costa Rica or Mexico. These pseudo-annuals, sometimes called *tender perennials,* can, at least in theory, be kept going over the winter and live to dress up your garden again next year. Examples of these tropical visitors include the coleus, geranium, impatiens, salvia, snapdragon, and wax begonia.

Meanwhile, *biennials* are plants that only live for two years. They grow their foliage and roots the first year and then flower the following year and then die. The most common examples are Canterbury bells, forget-me-nots, foxgloves, hollyhocks, pansies, stock, and verbascum (mullein). They frequently reseed themselves so some gardeners let them go to seed to ensure future plants. Most garden centers helpfully start these plants for you the season before or in early winter so they're usually sold as annuals and flower the first year that you plant them.

However, if despite your best efforts, your wintered-over annuals don't return to their former glory the following spring, accept their fate, pull them out, and replace them with new ones. Some of the annuals like marigolds, sunflowers, and zinnias reseed or self-sow themselves so they'll sprout and grow plants the following spring when the ground warms. Depending on how aggressively they do this can be a good or bad thing.

Perennial plants

For many gardeners, going from growing annuals to exploring perennials seems to be a natural progression. But remember that you don't have to choose! You can grow both and, indeed, your garden is likely to be the better for the diversity.

So, what, exactly are *perennials*? One gardener jokingly defined a perennial as "A plant that, had it lived, would've bloomed again the next year." For the most part, they're long-lived herbaceous (non-woody) plants — flowers and herbs, mainly. How long they last depends on the plant and the conditions in your garden. But these plants certainly last longer than annuals.

A typical perennial emerges in the spring, grows and often produces flowers and seeds as the seasons progress from spring to summer to fall, and then slows down or dies back in winter. But the plant doesn't actually die; it just rests. The following spring, your perennial returns in glory to repeat the cycle.

Unlike annuals, you don’t have to replant perennials every year. Once should be enough — well, if you choose wisely and take good care of your perennials, you ought to get many good years out of them.

Eventually, though, some perennials run out of steam. Their growth gets crowded and they don’t seem to flower as well. At this time, you can dig them out and replace them, or you can divide them (perhaps discarding the tired-out center, or mother plant) and replant well-rooted bits for a fresh new start.

Here are some of the many uses of perennials:

- Creating a colorful bed or border
- Filling an *island bed* (an isolated, self-contained garden, like an island in a sea of lawn)
- Mixing them with annuals to assure summer-long color
- Edging a walkway, patio, pool area, or deck
- Interplanting them with roses, annuals, or other ornamental shrubs to provide year-round interest
- Dressing up an area that was formerly lawn

For the nitty-gritty details on perennials, check out Chapter 7. If you just want the basics, read on.

IN ON THE GROUND FLOOR: GROUNDCOVERS

Low-growing perennial plants may be handy in a flower border (near the front where they won’t be blocked from view) or as an edging, but they have another, very practical use: You can plant entire areas with them, and they can form a low-care carpet. Groundcovers are problem-solvers for difficult-to-landscape areas such as shady areas, including under trees where lawn won’t grow, or areas where you don’t want to or can’t easily mow such as slopes/embankments.

Some favorite groundcovers include ajuga, candytuft, creeping phlox, epimedium, hosta, ivy, lamium, lily-of-the-valley, pachysandra, sweet woodruff, verbena, and vinca. For details on groundcovers, turn to Chapter 14.

Caring for and feeding perennials

The water needs of perennials vary. Some are moisture-lovers, others are drought-tolerant, and many are somewhere in the middle. Do your homework when choosing plants, not just on what they prefer but on which ones are suitable to the growing conditions in your yard and climate (otherwise, you'll be jumping through hoops trying to please them). Chapter 2 can help you get a grip on how to plan your garden.

One generalization is possible, though: Nothing makes newly planted perennials feel more welcome than plentiful water does. The perennials have gone from a sheltered and confining life in a pot to the wide world of your garden, and water helps sustain the roots and encourages them to establish themselves and expand into their new home.

Many perennials (like most people) enjoy being fed. They respond by growing more robustly and producing more flowers. You're fine with a general, all-purpose garden fertilizer, applied according to the label directions during the height of the growing season. Don't feed your perennials as fall approaches and growth naturally begins to slow. You don't want them producing a fresh new flush of growth that soon gets nipped by a frost. (For some general info on fertilizing, see Chapter 4.)

I have to admit that fertilizing the majority of perennials isn't mandatory. If you plant them in soil that suits them (and do your homework when choosing the plants), they may do just fine without it. Good, organically rich soil and good growing conditions and regular water can sustain healthy, hearty perennial growth for quite some time. Fertilizing merely supplies a boost in these cases.

Looking at lifespan

The life cycle of a perennial depends on various factors, notably the type of plant and whether it's happy in your garden. But you can certainly expect to get a minimum of two years and a maximum of a decade out of the vast majority of perennials. For best results, of course, take good care of them.

REMEMBER

Most perennials are slow starters. During their first year in your garden, they tend to invest in developing a good root system. Be patient! After that's established, they grow and expand, and the flower show gets better with each passing year. You can hurry things along by fertilizing regularly during the height of the growing season (see Chapter 4 for fertilizing details) and get a head start by planting in the fall (see the next section).

Considering fall planting

If you shop for perennials in late summer and get them in the ground a good six weeks or more before the first frost, those plants will definitely have a head start over their spring-planted counterparts. In fall, the soil is still warm and welcoming, and drenching fall rains can help water in the new kids. Depending on the severity of your winter, cutting back any new growth and mulching when winter is just around the corner may be good ideas.

TIP

Most perennials sold in the late summer or fall have been grown for an entire season so they're generally bigger plants than what you'll find for sale in the spring. Also, they're many times on sale because the grower doesn't want to overwinter them so you get a good deal. For much more on perennials, please turn to Chapter 7.

Bulbs and roses

Bulbs, which store their food underground, are a richly varied group of plants. The best-known ones like tulips and daffodils are spring flowering, but these plants represent only the tip of the iceberg. Many others, like dahlias and lilies, are summer bloomers. What they all have in common is that they're easy to grow and produce plenty of flowers. Just provide them a sunny, well-drained spot, stand back, and let them do their thing. See Chapter 8 for info on bulbs.

Although bulbs are quite popular, roses are America's favorite flowers for many reasons. They epitomize romance and come in an impressive range of flower colors, not to mention their inimitable delicious fragrances. Lucky for us, modern rose breeders have worked their wonders on this plant to produce roses that are not only stunningly beautiful but also tough as nails.

Roses are no longer the wimps that gardeners loved to think about growing but were afraid to try because of the reputation for being a magnet to every known plant disease and insect pest. Today's varieties are also available in a range of plant habits, from upright to bush forms to those that are ground hugging. Chapter 9 can fill you in on growing roses.

Gardening for Your Dining Pleasure

Increasingly for many gardeners, growing food is the real reason for gardening. There really isn't quite anything like the feeling of satisfaction a gardener gets from nurturing and encouraging a tomato plant to put forth the most gorgeous and delicious tomatoes imaginable or harvesting a healthy and tasty fruit from a tree planted right in the front yard. And if you like to cook, there's nothing quite like working with and eating freshly harvested produce that you know exactly what chemicals have been added or not.

Food-bearing plants come in all shapes, sizes, and types, from annuals and perennials, to trees and bushes, to vines that creep along the ground or climb to impressive heights when given the right support. Chapter 15 gives you the information you need to get started on growing your own vegetables. Chapter 16 is devoted to herbs and how you can grow them to enhance the dishes that come out of your kitchen.

Working with Woody (or Viny) Plants

When planning which plants to grow in your garden, check out native plants. In general, they're easy to grow because they have been long adapted to your area, are frequently drought tolerant, and are usually low maintenance. Check out which plants are native to your area at `http://www.nwf.org/nativeplantfinder/plants`.

Woody plants consist of shrubs, some vines, and trees. This group of plants is probably a more important garden element than annuals and perennials simply because of the space that woody plants take up over the long term. They serve as kind of the bones of your garden. You may have inherited some trees and shrubs when you moved into your present home, or you may be considering replacing what you have or installing some new ones. Whatever you're thinking, choose and act wisely. Allow these bigger plants the elbow room, the deeper prepared soil, and the light they may need.

The reason trees, shrubs, and some vines are called *woody plants* is that the bulk of their stems, and branches, are, well, woody — not herbaceous. This growth doesn't wither or die back in the wintertime, as it does with herbaceous plants. Yes, the leaves, flowers, fruits, berries, and seeds may fade and fall off, but the rest of the plant abides. And with each passing year, the main stem or trunk grows another layer thicker, and the plant may add additional branches or woody stems. No wonder woody plants are considered more-or-less permanent, and certainly substantial, parts of a home landscape.

Shrubs

You may choose flowering or evergreen shrubs. Both kinds are worthwhile in different ways. Just bear in mind that flowering shrubs tend to have a fairly brief period of glory, and then you're left with only foliage, so pick a shrub whose foliage you like. Good fall color and attractive or exfoliating bark, leaves, and/or berries may also be a factor in your decision. On the other hand, evergreen shrubs, whether broadleaf or needled, are valuable for long-term, consistent green color, sometimes offer attractive flowers, and, in many cases, a denser-growing profile.

Favorite shrubs for home landscapes include

- **Flowering:** Althea, deciduous azalea, broom, butterfly bush, daphne, deutzia, elderberry, flowering quince, forsythia, fothergilla, hibiscus, hydrangea, itea, lilac, mock orange, ninebark, privet, red buckeye, red twig dogwood, smoke bush, spirea, sweetshrub, sweetspire, various viburnums, weigela, winterberry, and witch hazel
- **Broadleaf evergreen (with spring flowers and more-or-less evergreen foliage):** Andromeda, aucuba, boxwood, camellia, cotoneaster, evergreen abelia, gardenia, holly, laurel, leucothoe, mahonia, manzanita, mountain laurel, nandina, oleander, rhododendron, and rock rose
- **Evergreen:** Arborvitae, boxwood, euonymus, some cedars, some false cypresses, hemlock, holly, juniper, laurel, some pines, some spruces, and yew

Take a look at some of the roles shrubs can play:

- Foundation planting (around the base of your house to add architectural interest, insulation, and security)
- Boundary and hedge plantings (possibly in addition to, or in lieu of, fencing — thorny ones, including shrubby roses, are popular as living fences)
- Individual, solo spots of color (specimen plants)
- Mixed-border citizens for more architectural interest (have a mixture of shrubs, or have a mixture of one type of shrub and roses or perennials or vines or all of these)
- Backdrops for a flower border
- Entryway, poolside, deck side, or privacy plantings
- As food and shelter for songbirds

For much more on shrubs, please turn to Chapter 13.

WARNING

Some shrubs can be extremely invasive and, in fact, are even against the law to plant in some cities or states. Some that you should avoid are Amur honeysuckle, autumn olive, barberries, burning bush, bush honeysuckle, common gorse, buckthorn, and multiflora rose. For a more complete list check out `www.invasiveplantatlas.org/shrubs.cfm`.

Trees

Trees can raise your property value, improve air quality, prevent erosion, lower your air conditioning costs with welcome shade, and provide a handy support for your hammock. Not too shabby, eh?

For most home gardeners, trees in the landscape are often already present but need care and pruning to look good and remain healthy. Or you may be shopping for one or more ornamental or fruiting trees to add. As with shrubs, your options include deciduous (ones that drop their leaves each fall; they may flower and fruit or have berries or seedpods) and evergreen (with leaves or needles that remain year-round).

Favorite trees for home landscapes include

- **Flowering and deciduous:** Catalpa, dogwood, dove tree, golden chain tree, horse chestnut, magnolia, redbud, serviceberry, silk tree, snowbell, and stewartia
- **Shade trees:** Ash, basswood, beech, catalpa, elm, ginkgo, honey locust, Kentucky coffee tree, linden, locust, various maples, various oaks, sourwood, sweet gum, and tupelo
- **Evergreen:** Arborvitae, cedar, cypress, false cypress, fir, hemlock, juniper, Norfolk Island pine, pine, spruce, and yew
- **Fruit and nut trees:** Almond, apple, apricot, avocado, cherry, chestnut, citrus, crabapple, fig, filbert (hazelnut), juneberry, loquat, mulberry, nectarine, olive, pawpaw, peach, pear, pecan, plum, quince, and walnut

Roles trees can play involve things like

- Shade
- Privacy (including noise reduction)
- Grandeur and substance in the landscape
- Food (fruits, berries, and nuts — for you and your family as well as for wildlife)
- Decorative beauty due to foliage (including fall color!)
- Shelter and food for birds and other wild creatures

WARNING

Referring to any trees as terrible may be heresy, but some trees can cause real problems like producing huge quantities of seeds that sprout all over where they aren't wanted and messy seed heads or fruit that are a pain to clean up. Some trees produce soft, weak growth that results in limbs breaking and falling on your house. Some of the undesirables are boxelder (sheds fruit and twigs, plus shelters yucky boxelder bugs), Bradford pear (heavy seeding and splitting branches), ginkgo (stinky fruit), silver maple (splitting branches), sweetgum (nuisance spiny balls), and tree of heaven (weak weedy growth). For checking out other invasive trees refer to `www.invasive.org/species/trees.cfm`.

For much more information on trees in general, please turn to Chapter 12. For info on fruit and nut trees, check out Chapter 18.

Vines

Annual vines like morning glory, nasturtium, moonflower, and so on aren't woody, but vines — woody or not — can be a substantial presence in your landscape. Vines like to grow upward, though some need assistance in terms of occasional judicious pruning/trimming, guidance, and/or support.

Some vines are valued mainly for their lush foliage. Others flower and fruit, with attractive seedheads or berries by fall — all factors that naturally add to their appeal and affect placement and maintenance. Choose vines based on whether and when you want these extra, color-contributing features. Also, when purchasing, be sure to inquire about predicted mature size.

Some of my favorite vines for home landscapes that are both attractive and have bird and wildlife appeal are

- Bougainvillea
- Clematis
- Climbing hydrangea
- Climbing roses
- Creeping fig
- Dutchman's pipe
- Grape
- Honeysuckle
- Jasmine
- Kiwi
- Mandevilla

Roles vines can play include

- Cloaking or disguising a fence (especially if it's unattractive; or just use vines to make it into a more substantial barrier)
- Climbing a trellis that's either against a wall or fence or out in the open (if well-supported)

- Covering a gazebo to give shade and privacy as well as beauty
- Decorating a pillar, arbor, or pergola, adding shade and beauty as well as making a major contribution to your garden landscape
- Adding extra, vertical color to your garden (which is especially nice if your garden is small or you want to give it a feeling of enclosure)
- Draping over an outbuilding or shed, an old or dead tree trunk, or another larger structure in need of some softening or disguise
- Providing flowers and edible fruit for decorating and eating

Note: Even ridiculously strong vines can't help you swing from tree to tree, namely because they're attached to the ground and not-so-attached at the top. If you really don't want to stay grounded, Chapter 19 can give you info on installing a tire swing. For much more information on vines, please turn to Chapter 14. I address climbing roses in more detail in Chapter 9.

WARNING

Some vines are rogues. They may smother or pull down supports, provide a haven for porch- or trellis-munching insects, shed too much, or produce unwanted many seedlings. A few to watch out for are akebia, Chinese wisteria, English ivy, Japanese honeysuckle, kudzu, Oriental bittersweet, porcelain vine, trumpet creeper, and wintercreeper. I've seen some of these vines used very effectively in certain circumstances. Just be careful and know that they can outgrow their welcome. For more info on invasive vines, check out `www.invasive.org/species/vines.cfm`.

The World Is Flat: Caring for Your Lawn

Some gardeners love lawn care; others think it's just a necessary chore. Whichever way you feel, one thing can't be denied: Lawns, even small ones, can define a garden. They frame and provide a backdrop for all your other plants. If your lawn looks shabby, unfortunately, the rest of your garden creations just don't look as good.

I appreciate that everyone these days is pressed for time and can't spend the time on manicuring their turf like golf course managers do, so in Chapter 11, I give you the basic, nitty-gritty information so that your lawn can do you proud without taking too much time away from the rest of your creative garden pursuits.

IN THIS CHAPTER

- Working with what you already have
- Deciding on your garden style
- Staying within your budget
- Setting up your garden plans
- Hiring a professional

Chapter 2

Creating a Landscape That You'll Love

Consider your ideal garden. Perhaps you know you want a handsome woodland shade garden, but what'll it look like? Or maybe you know you want a sunny cottage garden, but what's your vision? Getting to this point in your garden planning is a bit like shopping for a blue shirt. You know you want a shirt and you know you want it to be blue, but you still have plenty of options. Now's the time to narrow in on your target.

By assessing your gardening wants and needs and what you already have available for your garden, you can come up with the best garden for you. In this chapter, I lead you through the processes that can help you clarify your vision, and I explain how you can start making your dream garden a reality.

Creating a garden can be compared to writing a book. First, you start words (individual plants), then you put these words into sentences (plant combinations), next you put these phrases into paragraphs (sections of the garden), and finally these paragraphs turn into chapters and a book (your entire garden).

REMEMBER

Don't be intimidated by this process. No garden is created in a day. Take your time. Enjoy the process. Designing and creating a garden isn't static; it constantly evolves. There is no one right way to do this. And don't be self-judgmental. It doesn't matter what anyone else thinks. After all, it's *your* garden!

Evaluating What You Already Have

Observation! That's the very first step. Forget for a moment what's growing in your neighbors' yards or other home landscapes around town that you see and may covet. Take a broader view — it's all part of the assessing process, a process that can lead you to a gorgeous, successful garden of your own. And don't forget that the garden is part of your yard in general. If you incorporate your garden plans into an overall plan for your yard, the yard itself can become a beautiful extension of the garden.

Identifying and spending some time analyzing what you already have is an important step in planning. After all, every yard is different and therefore presents a gardening challenge. You may be surprised, as you ponder, to discover that you can work quite well with what you already have, making seemingly minor changes to major effect.

The following sections help you examine where to start, recognize what issues you have, and maximize what features your yard has.

Looking at the big picture

Here are the basic things to look for that affect your overall gardening plans. The following issues directly influence your planting decisions:

- **Local climate:** Over the course of a calendar year, is your area's climate dry or damp? Generally sunny or generally rainy? Do your winters (or summers) slow everything down or bring plant growth to a temporary halt? The answers to these questions can tell you which plants are likely to grow easily and which ones may require some extra help. See Chapter 3 for info about plant hardiness zones and how they affect your growing space.
- **Type of soil in your yard:** Consider the natural soil in your area. Is it rather sandy? Clay? Loamy (rich, crumbly, and dark)? Acidic? Alkaline? Does it drain rainwater away quickly, or does moisture puddle and linger for days? The answers can help you understand which plants will thrive and which ones will need soil improvements. (If you really don't have any idea, a simple soil test is a good idea — see Chapter 4.)
- **Plants native to your area (or already growing in your yard):** Finding out which plants (trees, shrubs, grasses, flowers) are native or perform well in your general area, either by observing or by asking around, can further fill you in on what kind of growing conditions you've been dealt.

- **Zoning restrictions:** Before you get too far along, make sure you're aware of any landscaping or building restrictions or regulations that your HOA or city might have. In general, front yard plantings that are visible from the street typically have more restrictions than backyard plantings or structures.
- **A good neighbor:** Let your neighbors know of your plans or additions, especially if your plans affect their views or privacy.

And here are some structural considerations for your garden:

- **Permanence of big structures:** Okay, the house stays. The garage and shed, too, although maybe you can move or replace the shed. What about shade trees? Can and should you cut any of them down, or at least prune them? Big branches may be a hazard, and letting more light into a garden is often welcome.
- **Walkways:** Changing the path of foot traffic if it's currently in the way of your garden space is hard, but not impossible. So take a hard look and be honest. If you add or replace a walking surface, the yard can look immediately nicer and your garden spot may be neatly outlined.

  REMEMBER

  Options for installing a path include gravel, brick, flagstone, and other paving materials. Wandering paths look nicer and slow down footsteps, but pathways should actually lead somewhere if you want people to use them. Wider paths also slow people down and encourage them to enjoy their surroundings — your beautiful garden.
- **Desire for privacy or shelter:** Good fences can make good neighbors, and materials make all the difference. Big, substantial wooden fences do block street noise and unsightly views but may also create shade and look unfriendly. A lighter or more open design may be better, perhaps softened with a flowering, climbing plant. An alternative is living fences of hedges or an informal line of bushes (evergreen or deciduous, with or without fruit and flowers — turn to Chapter 13 for information). Work with what you have to improve your fence's look, or vow to install or replace it with something nicer.

Identifying problems and restrictions

There are certain classic gardening problems and, thankfully, myriad solutions. Don't ever feel overwhelmed — picking out an area to work on and improve and concentrating your efforts can buoy your spirits, and then you can move on to another concern. My advice is to start first with an area you have the time and money to fix up — preferably an area you want to start enjoying sooner rather than later.

The main point is to take action. Address the big issues now, and you'll definitely feel well on your way to a more beautiful, enjoyable garden. Read on for some basic problems and possible solutions.

You have too much shade

A yard or garden space with a lot of shade is often lamented as forcing too many limitations on gardeners. Never fear! This problem is often much easier to remedy than you may think, usually just by pruning some trees and bushes:

1. **Go out with clippers and/or a small pruning saw to remove all nonnegotiable branches and twigs — anything obviously dead or diseased, particularly the lower branches of thick trees.**
2. **Go on to thinning — taking out growth that's rubbing against other branches or crowding the interior of a plant.**
3. **For anything you can't handle, call in a certified arborist or a tree company.**

   WARNING

   If you aren't sure you can do it yourself, don't do it! Tree work can be very dangerous. You need the services of a tree company if you decide to take out an entire tree or large limbs. Check with local authorities; in some areas you need permission to cut down trees. In the end? More sun, more light, and more air — a whole new yard!)

   If a tree is in your neighbor's yard but the unwanted branches come over into yours, talk to them about removing the branches or even the whole tree. When a shade tree affects your yard and your neighbor's, work out splitting the arborist bill to remove or prune — it's only fair!

   TIP

   If you decide to use a certified arborist, get references. Make sure the arborist is insured and bonded.

If a more permanent structure, such as a house or fence, causes your shade problem, you may still have more planting options available than you think. Review the chapters in Parts 2, 3, and 4 for a variety of ideas on how to grow in the shade.

TIP

Regardless of whether bushes and shrubs are a shade problem, you should prune them to remove some or all the offending thicket to keep your garden (and yard in general) looking good. Try an early-spring pruning foray. This is also the time to do drastic chopping back, say, if you want to reduce a hedge's height; cut no more than one-third at a time — you can prune again next season. Spring pruning is preferred because plants are surging into new growth, and they'll be better able to recover from cutting back. Fall pruning can be a mistake, because it may inspire fresh new growth that then gets damaged by cold weather/frost.

For flowering shrubs and trees, always prune them right after they flower before they develop flower buds for the following season. Otherwise you'll be removing next year's flowers.

You have too much sun

If your garden space is sunnier than you'd prefer, the quick solution is to add human-made items — try an umbrella or two, a pergola (arbor), or an outdoor tent. For the long term, you can make a planting plan with shade trees (see Chapter 12) and vines (see Chapter 14) that cover trellises and other structures.

Your yard is too big

Here are three good ways to reduce that maintenance-demanding, water-hogging lawn and create ideal spaces for gardening:

- **Make garden beds around the sides of the yard, widening or extending them as you can.** Alternatively, create what landscapers call *island beds,* which are flat or mounded beds (in any shape and size you like) in the middle of a lawn.
- **Add large, sprawling structures that take up a lot of yard space.**

  Some ways to do this are

  - Pathways
  - A terrace, patio, or deck
  - A pool (swimming or ornamental)
  - A potting shed or gazebo

  Adding garden beds around these structures really spruces things up.
- **Fence in or otherwise enclose individual garden spaces like rose or herb gardens around your yard.** The fence can be an artificial fence made of wood or metal, or it can be made of hedges, ornamental grasses, or trellises overhung with vines. Use your imagination!

  REMEMBER

  Fences offer so many possibilities. They create private spaces and add a whole new vertical element that you can festoon with vining fruits, veggies, climbing roses, annuals, or perennials. For example, consider adding a white metal fence festooned with blue morning glories, or a wooden one with a blooming rose bush swooning over it.

Your yard is too little

A small yard can seem bigger, more welcoming, and a lot more charming when you employ a few basic gardening techniques. With these methods, you can transform your cozy little yard into the garden of your dreams:

- **Soften the edges of your lawn so they don't seem so imposing.**

  If you have a fence, you can

  - Paint the fence a bright color (dark colors heighten the sense of constriction).
  - Add lush vines or climbing roses.
  - Adorn the fence with potted plants.
- **Create a varied layering effect.** That is, position different plant types and textures above and behind one another, stepping up to the edges of your yard. Some gardeners literally display a combination of in-ground and potted plants on and around a rack or stepladder.
- **Add a focal point.** Ideas include a statue, a small fountain, or one spectacular pot or urn with a big, dramatic plant or showy combination of plants; a focal point draws attention away from the close boundaries.

The soil isn't the type or quality you want

Every gardener wishes for beautiful well-drained rich black garden *loam* (rich, dark soil), but for most folks that's a pipe dream. Good soil is usually made by the gardener and rarely comes with the property. More often than you may think, poor soil thwarts gardening plans. People just forget or underestimate the importance of good soil to plant in.

TIP

To tackle this problem, consider doing one of the following:

- **Try growing only those types of plants proven to work in your soil.**
- **See what the neighbors are growing in their gardens.**
- **Check with the local nursery for the best plants to grow in your area.**
- **Dig into the soil and mix in the materials you want (sort of like making cake batter, only more work).**
- **Work to change and improve the soil.**

  Some folks use a rototiller for this job, but it has its drawbacks. A rototiller can pulverize the soil to such a degree that it destroys its texture. It also has other drawbacks. It brings weed seeds and bits to the surface where they begin to grow, and it damages the habitat of helpful soil organisms (from barely visible creatures that help break down organic matter to helpful earthworms).

A rototiller can be useful for doing the initial soil or sod busting, but after that initial work, forks and shovels will probably be your best bet. Just remember to add plenty of organic matter like compost or composed pine bark as you can (see Chapter 5 for more about rototillers). Remember to work down to a depth of 6 to 8 inches (15 to 20 cm) for most garden plants — less for shallow-rooted grass, more for trees and shrubs.

Too many weeds!

You can attack these unwelcome plants any time of the year, but you'll make faster progress if you start in late fall or early spring and thwart them before or just as they're sprouting. Use a hoe, smother weeds with plastic or mulch, or carefully use an herbicide (or some combination of these tactics).

Then, in midsummer, *make sure you don't let weeds go to seed.* Pull them, mow them down, and discard them outside your garden to keep them from coming back. There is a saying that nature abhors a vacuum; after you get weeds out, don't leave empty space to tempt more weeds to move in. Overplant or cover the area as soon as possible. If the weeds go to seed, your weed problem has just gotten much worse. Weeding after a rain when the ground is damp and soft makes it much easier and more effective. Weeding can *almost* be therapeutic!

Taking advantage of your yard's assets

Every garden space has its strengths and its good spots, if only you look, and some of the problems I mention in earlier sections can actually be benefits if you see them that way. You can save yourself a lot of time, effort, and grief by identifying these types of spots and working with what you have rather than knocking yourself out to impose an ambitious or inappropriate plan upon your garden space. Go with the flow, in other words! Refer to Part 2 for more on the specific types. Here are a few examples of conditions you may find within your garden space and how to handle them:

- **Sunny days:** Many plants, especially those with colorful flowers, love bright sunshine. Rejoice and be glad you have it; then go shopping for a wide range of bright and lively plants. Have fun with color combinations. No combinations are wrong as long as you like them. Full sun also affords you the opportunity to grow many vegetables, herbs, fruits, and waterlilies.

- **The dark side:** If your lot in life is shade, don't fret. Consider it a gift, a chance to create a cool, soothing, even enchanting oasis. Without direct blasts from the hot sun, plants in a shady area look fresher and crisper for far longer. Wilting and withering in the heat aren't issues, colors don't get washed out, and not only do flowers last longer, but they also add sparkle and definition. For ideas, read the shade-gardening parts of Chapters 6 and 7.
- **Dry conditions:** Instead of knocking yourself out trying to provide water for thirsty plants, seek out ones that prosper in drier growing conditions. A nursery that offers native plants (and good-looking cultivars of the same) is a good place to start. You don't have to grow only cacti and succulents, though you should check out the amazingly wide range of colors and shapes before you decide not to; lots of exciting dry-ground, drought-tolerant plants are available to gardeners these days. This type of garden has its own name: *xeriscaping.* You can find plenty of examples of these gardens online.
- **Water:** If your yard's soggy or boggy, stop neglecting the area to weeds or trying to dry it out. Instead, grow plants that relish damp ground. Loads of good-looking choices — large and small, tall and ground-covering, flowering and foliage — are available. Try red twig dogwood, red maples, skunk cabbage, Japanese primroses, or for real fun, go for some carnivorous plants like pitcher plants, sundews, or Venus flytraps.

RECLAIMING THE GOOD GARDEN HIDING IN YOUR YARD

Improving on what you already have in your yard is a quick and easy way to start enjoying a good garden. Timing is often key; that is, make your move at the right time and the project will be less work and will yield faster results. If the project seems overwhelming, by all means, find or hire help. Hiring someone to do a job that you aren't up to is usually much cheaper than going to a chiropractor if you overdo it!

To improve a flowerbed, rake out all debris, remove all weeds, and add soil amendments in late fall or early spring. Plan what will go in, and remember to avoid overcrowding and to allow for each plant's mature size. Last but not least, mulch the bed to retain moisture and thwart weeds so the bed will hopefully never get out of hand again.

You can reclaim a vegetable garden, even if it's full of weeds — chances are that the garden still has fairly good soil. Get weeds and debris out of there in fall or early spring, repair or install edging and/or fencing, and then dig in some organic matter for good measure (this step's easier now, before you add plants). Then cover the entire area with black plastic or a thick layer of mulch until you're ready to plant to keep out digging critters and thwart a resurgence of weeds.

Getting Ideas for Your Garden Space

After you take inventory of your garden space and yard in general, consider what *sort* of garden you want. Before you get bogged down in choosing plants and deciding where to plant them, think in broad terms once again. How do you want to use your garden? What are your needs and expectations? Naming your goals can help you further clarify the details of your plans. Here I detail a few garden ideas that may interest you.

Gardening with the kids in mind

If you have young children of your own or if kids are always visiting, plan for them and their antics. A flower border of precious perennials, some of them delicately supported by stakes, are in constant danger of being trampled if kids ride bikes or play rousing games of soccer nearby. Although placing your raised-bed vegetable garden right in the center of a sunny lawn may be logical, figure out whether the kids' fun and games work can around it or whether the kids will be running through it.

As parents everywhere know, the key to lowering your frustration level is being flexible. Site the perennials way at the back of the lawn area if you must; shield flowers with a fence or picnic table or living barrier, such as a line of shrubs or berry bushes; locate that vegetable garden more off to the side; and so on. You get the idea.

With kids' short attention spans and wish for quick gratification, it's unlikely that you'll be able to get the children to help you dig up a new planting area, nor would it be safe or advisable to have them help with pruning projects. But you have plenty of other ways to build your kids' interest in gardening:

- **Raise some easy-to-grow plants for kids.** Favorites include radishes, green beans (pole beans, on a teepee, so kids can have a fort inside), nasturtiums, morning glories, mini pumpkins, and sunflowers.
- **Plant things kids love to harvest, whether vegetables or flowers for bouquets.** Just make sure you supervise children, especially if they're using clippers or scissors.
- **Create or help them create their own little area.** Consider a small cutting garden or a fern bed in which to play with their toy dinosaur.
- **Encourage help by putting money in the till.** Don't forget the time-honored tradition of paying your budding entrepreneurs for pulling weeds and picking off bugs — though the going rate is probably no longer a penny a dandelion!

Flip to Chapter 22 for some fun gardening projects for kids.

Establishing a good garden for pets

Contrary to popular belief, pets and gardens are compatible. All you need is some creativity to accommodate both of them. However, because the animal is part of your life, you have to consider meeting her needs a given when setting out to lay out your yard and garden.

Your biggest concern may be where your pets do their business. Dog and cat urine can create brown spots in lawns (mostly due to ammonia and uric acid in the urine), especially when the pet is a creature of habit and returns to the same spot over and over again. Just water the area to dilute, and the problem should go away. Dusting the area with gypsum can also help to neutralize the urine.

WARNING

Either bury or scoop pet poop — your decision. Just never add this waste to a compost pile or spot where edible plants are growing, because cats and dogs aren't vegetarians, and meat waste products don't belong there. Pet feces can contain harmful bacteria, parasites, or other disease-causing organisms.

WARNING

If you have pets, be careful about the gardening products you use and where you store them. Plan to keep the critters indoors after fertilizing or spraying until the packaging says it's safe. You may also want to consider what you choose to grow and where you plant it: If animals eat a plant that doesn't agree with them, up it comes — on your living room floor! In some cases, a trip to the vet may be in order. Visit the Animal Poison Control Center website at `www.aspca.org/` for more information.

Designing a dog-friendly garden

If you have a dog or dogs, design your garden with the following in mind:

- **Water to drink:** Place a large bowl of fresh water in a spot where your dog can get direct access to it without trampling through valued plants and where no humans will step on it. Replenish the water often, because it may collect debris, dry up, or get too warm if in the sun.
- **Shade to rest in:** Your dog may have her own ideas about which shrubs or trees to rest under, but you can influence your pooch's decision by trimming away lower branches so scooting into the spot is easier. You can also create and fill in a sand beach area, which also allows unfettered and nondestructive digging, if your pooch is a digging sort.

  If you want to have a fenced-in dog run area, make sure it has sheltering shade throughout the day in some part and that the run is in a spot where you can see and/or hear your pet (so you don't forget about your four-legged friend!). Dogs don't like to do their business in the same place where they rest or play, so the run needs to big enough to allow for both activities.

- **Plants in tall containers:** This puts the plants out of range of most dogs.
- **Grasses that are more urine tolerant:** Bermuda grass holds up well.

Making your garden cat friendly

Outdoor cats need clean, cool water, too, and they also like the sanctuary of a safe, shady spot where they can observe undetected or undisturbed. Watch where they go and improve it for them if you can with extra protection (like their own small, simple cat house) and more space. ***Note:*** A garden with sand isn't a great idea if you have cats; they'll think it's an outdoor litter box!

Sometimes cats use tree trunks as scratching posts; little trees can't tolerate this abuse of their outer bark, so rig a collar of tape, chicken wire, or hardware cloth to prevent the damage.

Creating space for entertainment

A popular trend these days is outdoor rooms or outdoor living, and it's easy to see why. When good weather comes, who can resist hanging out or dining in the fresh air?

Patio gardens, decks, and terraces adjacent to the house (front, side, or back) continue to be popular because you and your guests have easy access to the house. People can easily pop inside for additional food, drink, or supplies; to use the restroom; or to dispose of trash. Screened-in spots may be necessary if you have a mosquito or other bug problem and still want to be comfortable outside. (For ideas on container gardens for patios, see Chapter 19.)

TIP

If you want to place the focal point farther from the house, such as at a gazebo or under a pergola or in a poolside entertaining area, make sure it's well-stocked with beverages and snacks to spare yourself long treks back and forth to the house. Place it close to electrical outlets for lighting possibilities and water for cleaning up. Outdoor storage units and shelves should do the trick.

You can find a wide array of outdoor furniture options — styles as well as materials. From rust-resistant tables, chairs, and benches, to mildew-resistant cushions in bright colors, to handsome but practical umbrellas, you can have a set that looks great even when left out in the sun and rain. Just feast your eyes on the choices at your local home-supply store, big-box retail store, or mail-order gardening supplier. The outdoor lifestyle has never offered so many excellent and attractive choices. Choose stuff that meets your needs, is durable, and has style and color that match or enhance or set the tone for the surrounding garden. (You may also invest in attractive, fitted covers for everything to protect items from the elements when not in use.)

Outdoor entertainment areas ought to connect to the garden so that although people are enjoying indoor-style comforts and amenities, people are still able to savor the unique joys of being outside. You can incorporate potted plants (both colorful flowers and practical herbs or veggies), set out vases of flowers cut from the garden, add hanging baskets, and plant right up to the perimeters. To create a transition from the outdoor entertainment area and the garden proper (and thus gracefully blend them), repeat elements in both places — use the same or similar plants, or incorporate the same or complementary colors (*complementary colors* — red and green, blue and orange, and purple and yellow — are across from each other on the color wheel).

Add flair and beauty to your outdoor entertaining area with wind chimes, candles, citronella torches, lanterns, or windsocks.

REMEMBER

Whatever you decide to set up, remember to imagine and then accommodate foot traffic — people will wear a path anyway, so plan for it.

Designing a sanctuary

A garden retreat needs to be outside and away from the busy world where you can relax and gather your thoughts in peace, quiet, and solitude. In a sense, any garden can provide retreat for the world-weary, nerve-jangled gardener. But some backyard retreats are more soothing than others. Having a simple and undemanding landscaping and decor can encourage you to relax, not jump up to attend to garden chores or errant weeds. Plants with relaxing colors of blue, green, and pastels also help set the mood.

You needn't turn your entire garden to a Zen-like space (but you could). A special corner or tucked-away nook will do. Privacy, protection, and isolation are key elements of a good retreat. Think about adding a fence or wall to block out sights and, equally importantly, sounds. Less-solid screens in the shape of trellises or tall and dense plantings of trees and shrubs or even a gathering of potted plants can also enclose a space. The idea is to make a garden room accessible yet insulated. For summertime relaxation, consider a shady retreat.

Within the walls of your retreat, make a comfortable place to sit or even recline. A full table-and-chairs set is appropriate if you plan to share the space and enjoy meals or quiet cups of tea here. A hammock or a chaise lounge invites reading and relaxing.

Now consider the furnishings — namely, plants and decor:

- **Choose plants that don't require fussing.** For shade, try impatiens or ferns; for sun, marigolds or zinnias are good choices. Stick to a simple or even monochromatic color scheme, one that's soothing to the eye.

- **Consider a water element, such as a small, tubbed water garden or fountain.** The inherently soothing sight and sound of water can help block out distracting noises. Units now on the market work on solar energy and don't require electric hookups (see Chapter 20 for water garden ideas).
- **Personalize the space.** A judiciously employed ornament, such as a hummingbird feeder, a large clay urn, a garden statue of St. Fiacre (the patron saint of gardeners), Buddha, or an interesting rock can further the mood. Use simple ornaments that have meaning to you and are in keeping with your theme.

Cooking up an edible garden

If you love to cook and enjoy gardening, it's only a matter of time before you long to grow your own produce. A so-called kitchen garden can be modest in size, easy to manage, and produce all the fresh vegetables and herbs you desire. It doesn't need to be extensive or as ambitious as a back-forty vegetable garden. (For help with such a large garden, flip to Chapter 15, remembering that it may require more space and it will require full sun.)

Because a kitchen garden exists for one reason — to generate good things to eat — planting it near your house is best. That way, you can pop out the door, snip the herbs you need or grab a few sun-warmed cherry tomatoes, and put them to immediate use. Ideally, a kitchen or dining-room window overlooks your patch so you aren't likely to forget what's ripe for the taking.

SETTING UP YOUR GARDEN FOR INTERNATIONAL CUISINE

Consider what kinds of cuisine you like to cook, and you can prepare yourself for an international feast with some of the freshest possible ingredients:

- **Chinese:** Try long beans, Chinese broccoli, Chinese cabbage, water spinach, and bok choy.
- **Indian:** Opt for various herbs and leafy greens, plus certain kinds of eggplant and onions.
- **Italian:** Be sure to include tomatoes, oregano, and basil, at the least.
- **Mexican:** The easy herb cilantro is a must, as is epazote, and of course, a salsa medley of tomatoes, onions, garlic, and various peppers, hot and mild.

If your goal is to serve healthier and fresher food to your family, go for a variety of classic vegetables and herbs. Even salad skeptics may be won over after they taste a wondrous array of colorful lettuces accompanied by fresh ripe tomatoes. And kids who don't normally enjoy vegetables can discover the joys of fresh, sweet homegrown peas and carrots. For more on raising vegetables, consult Chapter 15; I cover herbs in Chapter 17.

The easiest, most successful kitchen gardens are small and simple. You can always expand later. To start, I recommend

- **Keeping it sunny:** At least six hours of full sun per day is essential for good growth and ripening of almost all vegetables, herbs, and edible flowers. Morning light is preferable to afternoon because it dries the dew (reducing the risk of disease) and is less stressful than the blazing heat of midafternoon.
- **Setting the boundaries:** Stake out a spot using string rigged between wooden sticks, or try a simpler approach: Use your garden hose as a guide. After you establish the garden, you can edge the bed with bricks or stones or commercial edging. Plastic edging is cheaper but quickly becomes brittle when exposed to full sun; steel edging is a much better choice and will last a long time. Or dig a roughly 4-inch-deep (10 cm) trench all around the edges. The idea is to keep any lawn grass from encroaching on your kitchen garden.
- **Building raised beds:** If the soil in the appointed spot isn't very good, erect a raised bed from planks standing on edge. Be sure to use untreated lumber, because some wood preservatives may be harmful to edible plants. Unless you use the more expensive cedar, these wooden sides will eventually rot and need replacing. Composite lumber that is a mixture of wood fiber, plastic, and some type of binding agent is another option. These ingredients are bonded together to form a material that is denser, stronger, and heavier than wood alone and makes it extremely resistant to insect damage and rot. See Chapter 15 for info on raised beds.
- **Installing protective barriers:** If you garden in deer, woodchuck, or rabbit territory (just to name some of the worst pests), or if you host backyard soccer games, a protective fence around your kitchen garden may be in order. Use poultry wire or wood and sink it into the ground to discourage digging invaders. If the fence doesn't look very attractive, plant fast-growing, light-weight plants to cover it, such as morning glories and moon flowers.
- **Planting a few containers that are literally at the kitchen door:** Try a small tomato plant surrounded by 'Spicy Globe' basil, a cut-and-come-again mix of lettuces and salad greens, and another container of your favorite herbs.

Zeroing In on Your Ideal Garden Style

After you've determined your basic wants and needs for your garden space, you're ready to decide on its overall style. Gardens come in many types, themes, and moods. Yours can be informal, with less strict boundaries, a more casual look, and a wide variety of plants; or it can be formal, with symmetrical lines, crisp edges, and a limited plant palette. Or it can be one of many variations in between.

Select a style based on the architecture of your house, the lay of the land, or even an idea you saw in a magazine or online. Your choice also ought to take into consideration the advantages and disadvantages already inherent in your yard and gardening space, as I outline in the first half of the chapter.

REMEMBER

A garden is an emotional place for many people — a place of pride and joy, of relaxation, comfort, and meaningful projects. It may contain favorite plants of loved ones. Luckily, a garden's always a work in progress, and you can improve, expand, or totally change some or all of it over time. You should also be open to surprises, like the errant sunflower that pops up near the deck or the herb that self-sows into the roses and ends up looking pretty there. So, dream and plan, but be flexible. One of life's greatest pleasures is just puttering in the garden with no particular mission in mind and discovering something new or unexpected.

Gardening around a theme

Garden design often goes beyond the types of plants you want to grow and the type of function you want your garden to have. Thematic elements can also influence the look of a garden. Do you have a soft spot for old-fashioned English rose gardens? Or Japanese Zen gardens? Or even sandy deserts filled with cacti and succulents? In the following sections, I list some popular style elements to help you continue clarifying what you may want and need.

REMEMBER

If you want your garden to be like the styles in this book or any other of the large variety of garden styles available, be sure to do plenty of research beforehand to make your space look as harmonious and authentic as possible. And don't forget to make sure your space can accommodate the style! Trying to install an outdoor cactus garden in the Midwest USA may not be your best bet.

Formal gardens

Keep formal gardens simple (see Figure 2-1). Aim for balance and symmetry so the garden has an air of calm elegance. Here are some tips:

- Use strong lines and boundaries, such as groomed hedges, walkways, perhaps even a reflecting pool.

- Employ single-color plantings, aiming to match or complement your house color, fence, or another element.
- Add stylish pots, urns, gazing balls, or statuary. Keep everything in moderation so it doesn't look cluttered.

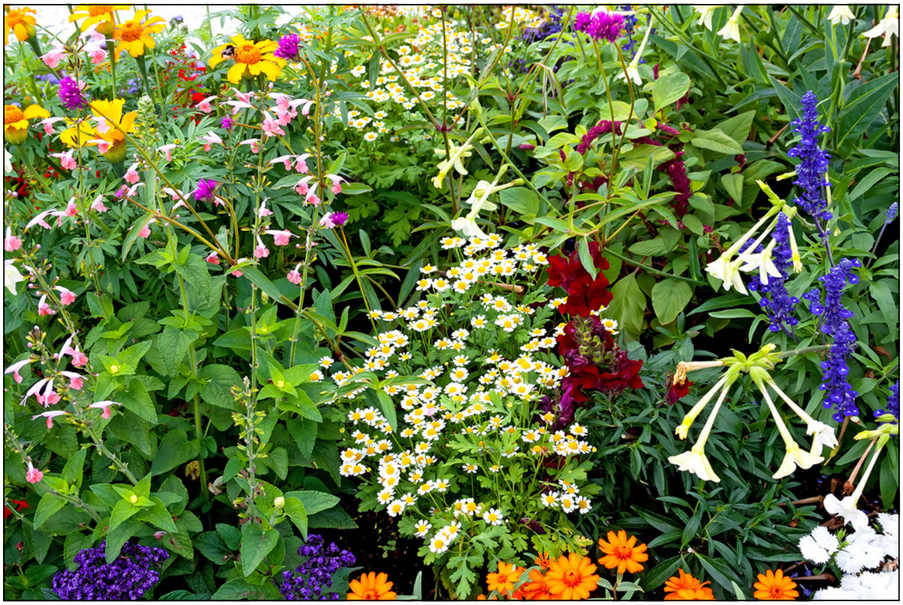

FIGURE 2-1: Annuals come in many different shapes and colors.

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Japanese gardens

Japanese gardens (refer to Figure 2-2) are usually based on a *garden floor*, or a broad area of raked sand or stones. Choose fine-textured traditional plants, in pots or in the ground. Try bamboo, dwarf conifers, Japanese maples, iris, azalea, and flowering fruit trees. Then include Asian-style accessories such as stone lanterns, bamboo fencing, a water basin, or even a small tea house. When you choose plants for a Japanese garden, think small. Using dwarf varieties of plants can help keep the garden in scale.

Tropical garden

Put a piece of paradise in your own backyard. Tropical gardens (check out Figure 2-3) emphasize lots of big, bold, leafy foliage plants (such as cannas, coleus, hibiscus, and taro) in the ground or in large containers. Use bright flowers in hot colors: yellow, red, and orange, as well as bicolors. Then include a water feature, such as a pool, fountain, or stream. You can add drama with extras: birdhouses or cages, colorful pots, gazing balls, and playful or handcrafted decor and statuary.

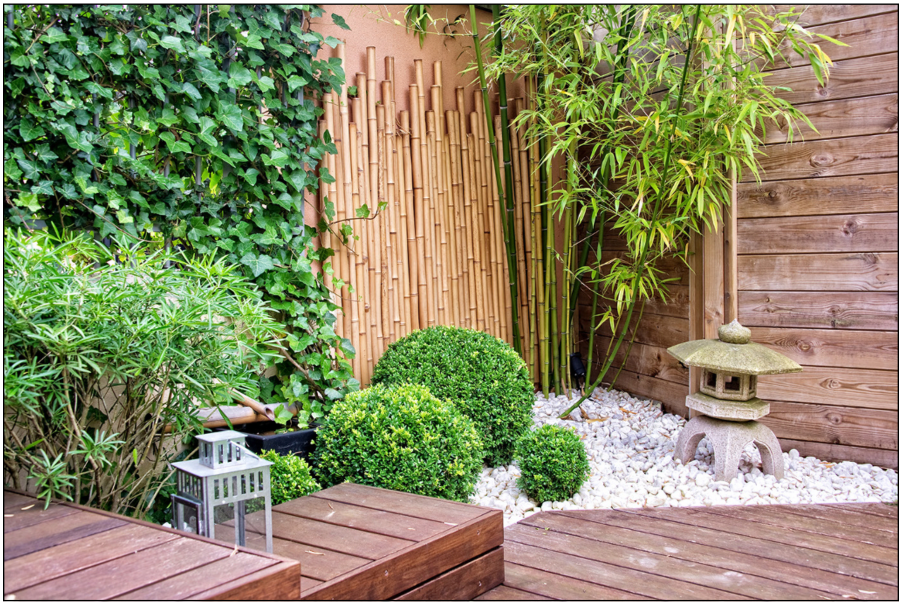

FIGURE 2-2 A delightful, relaxing Japanese garden.

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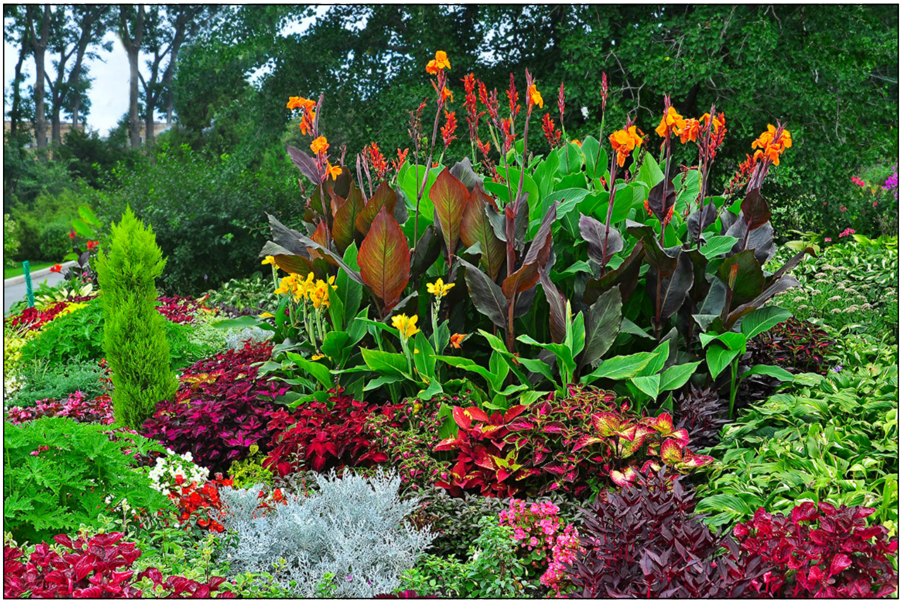

FIGURE 2-3: Bold colors can create a festive, lush, sizzling, tropical feel.

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Cottage gardens

Cottage gardens should be overflowing with colorful blooms, so plant these inviting, informal gardens with a generous hand. Include lots of roses and other fragrant plants (including herbs). Keep the plants well-tended (remove spent flowers and stems) but allow them to express their natural exuberance. Finally, add some charming touches — a picket fence, an arbor, whimsical birdhouses, or wind chimes.

Dry climate gardens

If your area is a little on the parched side, you may want to opt for a dry climate garden. Employ a naturalistic layout, perhaps with a dry streambed or stone pathways, and choose plants that thrive in hot sun, including but not limited to cacti and succulents. Then strategically place accents of colorful or more water-needy plants in pots or in groups.

Woodland gardens

Woodland gardens, which are often shady, include groundcovers that flower as well as bulbs (for lots of spring color). For fall color, you can plant some native asters.

This garden is most practical if you already have a well-treed lot. Tall deciduous hardwoods like oaks, beeches, and maples are ideal because they provide a high canopy with diffused shade. Seek out diverse forms and colors for the larger plants, from bold hostas to lacy ferns. You can then tuck in non-plant items for color and interest, such as ornaments and garden furniture.

Perusing sources for inspired ideas

As part of your narrowing-down process, have fun as you gather inspiration. Here are some great suggestions:

- **Go online and search for photos of gardens.** You can look for home garden designs or search specifically for types of gardens you want to create. You can also check out Facebook, Pinterest, and Instagram for more ideas in their garden forums.
- **Thumb through back issues of gardening magazines and flag beautiful photographs and helpful articles.** Grab a few of those arguably fluffy gardening magazines you often see at the checkout stand at the grocery store or home improvement store (technically, they're called *SIPs,* or Special Interest Publications). These publications tend to be heavily photo-driven, lighter on the actual how-to information, but that's the dreamy stuff you want right now.

- **Check the gardening books you already own, both practical ones and coffee-table books, and do the same.** Visit a well-stocked bookstore or the book section at a garden center and do some more prospecting.
- **Look in your library.** Your library can be a super source for garden design books. You can skim through a lot of them without paying a penny. After you find a few useful titles, buy them.
- **Visit the gardens, including public parks, botanical gardens, and arboreta, that aren't too far beyond your front door.** Take some photos with either your phone or camera. Walk around surrounding neighborhoods and take pictures of gardens or vignettes that pique your interest. Many neighborhoods and Master Gardener programs sponsor local garden tours that are great for idea shopping and you can usually talk directly with the garden makers to pick their brains. If your city parks department takes care of the city parks, walk through them for inspiration as well.

The object of this exercise is to fill your mind with enticing images of what's possible. You also get to see how other gardeners — in various regions, with different types of yards — have pulled off their woodland garden or cottage garden or whatever you're aiming for. Study their creativity and their solutions; they can help you clarify your vision.

Keeping Your Budget in Mind

Having a good garden, or a series of smaller gardens on your property, does cost money. Fencing materials and paving stones aren't cheap. Garden furnishings and decor aren't cheap. Big plants, special small plants, and pots aren't cheap. Potting soil and loam aren't cheap. Fertilizer and pesticides aren't cheap. It all adds up. And, frankly, budgeting is hard when you're dealing with an ongoing project whose look is likely to evolve.

So here's my main advice: Relax. Rome wasn't built in a day. Take small bites, if need be. Tackle one project at a time and see it through, and then move on to the next one. Or divide a large project into sections and allow yourself time — even several seasons or years — to complete it.

One place where you can save money is labor — use yourself, involve your partner or your kids, bribe friends with dinner, or hire neighborhood kids. And remember that, fortunately, gardening is one of those experiences in life whose journey can be as satisfying as the destination.

TIP

Here are some other money-saving ideas:

- Grow plants from seed. See Chapter 10 for much more information on this.
- Divide perennials and shrubs and move the pieces to other parts of your yard. (See Chapter 7 for info on how to divide perennials.)
- Get plants from other gardeners — some people may simply give you their unwanted surplus; others will be happy to swap. Join a local garden club, and you may be assured of these transactions!
- Make your own compost (see Chapter 4 for tips). And always compost your fall leaves instead of bagging them and sending them off to the local landfill.
- Buy from the source or grower, whether it's a special daylily nursery nearby or a local brickyard.
- Browse yard sales, junkyards, and antique shops. You may happen across real bargains in garden ornaments as well as pots, gates, trellises, fencing, and so on.

Last but not least, take care of your investments. It's a sad waste to let good, costly plants or garden areas languish or die. The more you know about soil, about planting, about plant care — and this book is chock-full of useful advice — the easier it'll be to do right by your garden. A thriving garden can repay you many times over.

Bringing Your Garden Ideas to Reality

Now's the time to start getting real. Armed with your ideas and goals and wishes, step outside and bring your plans to life. Some gardeners find that the best time to do this step is fall or winter, when you have fewer distractions from overgrown plants and seasonal clutter. The outline and the "bones" of a yard are more evident then. But whenever you do this step, look beyond what's present. Visualize what will change and what will go in.

When you're ready to sketch out your garden plan, you can do it yourself or, if it seems daunting or is simply not your cup of tea, you can hire a licensed professional (see the section, "Getting Professional Help," later in this chapter). Your overall garden plan doesn't have to be precise or perfect. It just has to do what you need it to do — show you your yard so you can plan what you want to put into it.

COMPUTER-AIDED DESIGN: EMBRACING YOUR INNER (GARDEN) ARCHITECT

Once the province of professionals, garden planning software is now available to the general public. Computer programs can take you through entire planning processes and generate detailed plans, alternate plans, and close-up plans. Some come with extensive plant databases. Others offer impressive show-and-grow features to help you visualize what your yard will look like next year, five years from now, and so on.

To use one of these programs, you need

- **Time and patience:** You have to study and decipher these programs to understand what they can do, especially if you have no landscaping training. The journey should be as intriguing to you as the destination, or else you'll get frustrated.
- **Money:** These programs vary a great deal in their cost. The ones designed for amateurs aren't that expensive and have many of the features you need. If you want a full-blown design program like the professionals use, you're talking about a sizable chunk of change, but they're still cheaper than hiring someone.
- **Good equipment:** An old Mac or PC will choke on today's gardening software; you need a powerful machine with plenty of available memory and speed. If the computer runs your kids' video games well (or yours, for that matter), it'll do a decent job with most design programs.

  You don't need a fancy large-format or color printer, though — just burn a disc of your plan, take it down to a good copy shop, and have someone else whip up the visuals.

To find software that suits your skill level and needs, do an Internet search, examine advertisements, order brochures, and of course, talk with anyone you know who's used one. Some community colleges, Cooperative Extension Services, and adult-education programs offer classes in using this software — they're worth looking into!

Sketching out the yard you have now

You don't need to be a drafting whiz or have a software program to make your garden plans. Good old-fashioned pencil, paper, and a few simple and inexpensive tools work just fine. And there is no learning curve. Using graph paper and the tools necessary to draft out your garden (as Figure 2-4 shows an example plan). Draw your plan of your site to scale, say ¼" for each foot. Plot every feature you find on your site, both natural and those you or your predecessors have put in place. Use a measuring tape to get at least approximate measurements. You may want to indicate areas of sun and shade.

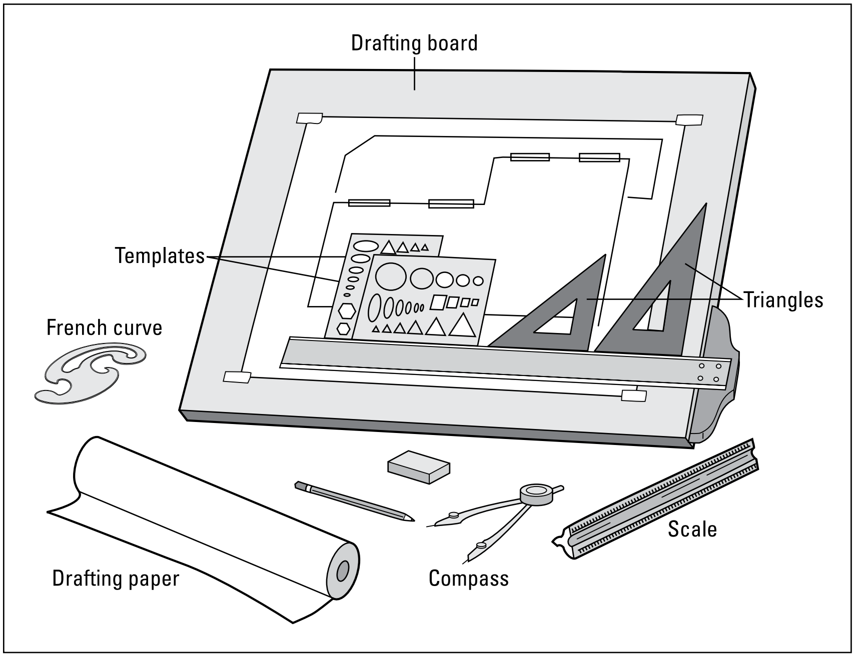

FIGURE 2-4: You can draft your garden plan, but here are some tools that can help.

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If you want, you can also use photography to help sketch out your plans, Photograph panoramic sequences of every part of your property, as well as external features (such as views) you may want to enhance or hide.

Making your drawing match your dream

After completing the initial drawing of your yard or garden plot to your satisfaction, you can move forward and add the elements for your garden plan. Here are some recommendations:

1. **Gather any pictures you're using for inspiration, and prepare a list of your main goals, assets, and limitations.**

   Go to the earlier section in this chapter, "Evaluating What You Already Have," for advice on looking at your yard's challenges and advantages. The earlier section, "Getting Ideas for Your Garden Space," can help you focus on your gardening goals.

2. **Study your current plan carefully.**

   Decide which features you want to incorporate into your final plan, which ones you want to highlight, and which ones you want to downplay or remove.

3. **Place a piece of tracing paper over your plan.**
4. **Use a pencil and sketch in or leave out various features and designs.**

   Try hard to stick to your theme or overall vision and attempt to be organized (see the section, "Zeroing In on Your Ideal Garden Style," earlier in this chapter for details on themes).

   TIP When designing your garden plan, you don't have to get bogged down in details, listing every plant by name. Instead, "sun-loving perennials," "blue and yellow bed," or "pots of annuals" may suffice.

TIP When I make my garden plan, I like to use several sheets of tracing paper. I use one sheet for each type of plant: one for trees and shrubs, one for bulbs, one for annuals, and one for perennials. I lay over the base plan with all these tracing papers on poster board; it contains the fixed existing features like the house, trees, and hardscapes. Using multiple sheets make it easier to see how everything will go together.

After all the elements you've planned for are in place, take a good look at them to make sure the overall drawing matches the initial image of the dream garden you had in your head. If something looks awkward or looks like it needs to be moved or changed in any way, do so! Keep changing that drawing (and redrawing it if necessary) until you have a final plan that satisfies you. Only when your final plan is in your hands should you prepare yourself to move on to the next step.

Defining key areas to start

With your sketched yard in hand, your next step is to decide which area you want to start with and to roll up your sleeves. As I repeatedly advise, tackling everything at once isn't easy and often isn't realistic or affordable. Break big projects down into manageable pieces, and do them one at a time.

Like rooms in a house, a garden area has four major elements. And as in building a house, going from the ground up is best. Tackle the four major elements in this order:

1. **Floor**

   Lawn grass, a groundcover, paving materials, or good, plantable soil
2. **Walls**

   Supplied literally by a wall of your house; by a fence, hedge, or trellis; or by backdrop of evergreens or shrubs of some kind

3. **Ceiling**

   Can certainly be open sky but may also involve an umbrella, awnings, overarching tree or large-shrub branches, or a pergola with or without a cloak of plants

4. **Furniture**

   Literally tables and chairs and benches and the like, but also major containers or garden ornaments and decor

REMEMBER

Don't go overboard with garden gnomes and pink flamingos. Limit yourself to one or two ornaments and keep the focus on the sense of space and the living parts of your garden.

Getting Professional Help

Getting a garden plot ready, especially a large one, isn't easy, and I don't pretend that it is (I have better uses for my creative energy, such as pretending I'm in Hawaii). If starting the process makes your head reel, or if you don't have confidence in your design sense, don't worry. Others can do it for you. They can do everything, in fact, from planning on paper to purchasing to digging the holes and planting the plants. You can confer with or hover over them, or wind them up and let them go. You can even stop them at the point where you want to take over.

Also, be honest with yourself when a project is beyond your ability, unsafe for you, or too time-consuming to undertake on your own. Under such circumstances, go ahead and hire a contractor. The following sections examine four options you may consider when hiring a professional. I also include important tasks you can do when hiring a pro.

Considering different professionals

Here are four choices for hiring a professional:

- **Landscape architects, landscape designers, and garden designers:** Landscape architects, landscape designers, and garden designers are all professionals, trained in every facet of planning and realizing an outdoor plan. Their scope goes beyond regular backyard gardens or even the landscaping of an estate; many of these folks are capable of laying out a resort, college campus, public park, and so on. They can cope with topography and know how to analyze a site completely, down to its soil and light and existing vegetation. They can design walkways and decks and such in savvy and attractive ways. They can then draw up a design or several alternatives.

All concerns about cost aside, hiring someone like this to do your yard is a marvelous investment. These professionals tend to notice and address elements and problems you may not have thought of; they propose appropriate and attractive solutions; and they have wide knowledge of both plant material and hardscape components. They're the full planning package.

- **Landscape or general contractors:** They're the folks who are usually called in to actually install the job. They do the heavy lifting. Don't be afraid to ask someone for help to create your vision: somebody strong enough, experienced, and knowledgeable; somebody certified, bonded, and insured as well. A reputable contractor has no problem demonstrating her qualifications. Getting help isn't wimpy; it's only good sense.

  Let someone else do the hard jobs and do them safely and correctly the first time. These folks can install all your residential hardscape needs like walks and walls. Save the fun and creative parts for yourself.

- **Master gardeners:** A *master gardener* isn't someone you hire but rather someone you can consult and consider a resource. Master gardeners have to follow a certification process. Throughout the country at Cooperative Extension Service offices (staffing and budgeting permitting, I should add), classes train avid home gardeners or anyone else who's interested in horticulture. Candidates take a core course, often in the fall or winter when life outdoors is less busy.

  The hours and courses required for certification vary from office to office, state to state. Getting certified doesn't make a person an expert; it just shows that he or she has made a commitment to learning more about and serving in the local horticultural scene.

  To find a master gardener, call the nearest office of the Cooperative Extension Service. You can search online or go to `https://ahsgardening.org/gardening-resources/master-gardeners/`.

- **Professional horticulturists:** The term *professional horticulturist* is somewhat nebulous, but in general these professionals are university-trained folks with an undergraduate or graduate degree in some form of plant science, usually horticulture. They usually have a broad range of knowledge about plants. Their training is science based and includes courses on soils, chemistry, biology, botany, plant physiology, entomology, plant pathology, landscape design, as well as specific courses on various aspects of horticulture. Most of them work in professional capacities at large nurseries and greenhouses. They may or may not have a background in garden design.

Hiring a pro for landscaping help

If you decide to get professional landscaping help, be savvy so you get good work and you get what you pay for. Here are some guidelines:

- Before you check online, ask around. Word-of-mouth is an ideal way to get started. Find someone who has done this like a neighbor, a friend, a Facebook friend, or ask at a trusted garden center.
- Find a minimum of three possible contractors. They should be willing to make an initial appointment that involves assessing and estimating only; be sure to ask whether they charge for this step (and whether, if you go with them, the fee can be credited to the job).
- When the professionals arrive, have some copies of your plans to show and, if need be, hand them over.
- Ask for a bid in writing — materials *and* labor estimates with a clause for addressing unexpected expenses and overruns. To figure out what a reasonable cost would be, ask friends and neighbors what they paid, and get estimates from multiple sources.
- Check references. Also confirm that the contractor is both licensed and insured.
- Pick someone you like and, more importantly, can communicate with.
- Discuss concerns every step of the way — the more communication, the better. If changes come up, be smart and get the revised plans and charges in writing.
- Pay in installments — give a deposit, then perhaps pay a second installment or more, and finally pay the last one when all parties agree the work is complete and satisfactory. Such an arrangement gives the contractor security and a commitment from you but also prevents you from being taken for a large fee if something goes awry.
- Know what you like. Contractors aren't mind readers. The more you have figured out what you want ahead of time the more satisfied you'll be with the final result. What colors do you prefer? How much maintenance do you expect? Do you like any particular roses, flowering trees, flowering shrubs, evergreens, bulbs, and other types of plants?

TIP

Start the process of hiring a contractor early if you can. Winter is an ideal time. Good people have full calendars, and spring commitments are booked early. Finding the right professional, somebody you can afford, or someone nearby may take some time; you may interview several before settling on one.

IN THIS CHAPTER

- **Deciphering hardiness zones**
- **Growing in seasonal frost zones**
- **Cheating zones and growing seasons**

Chapter 3

Getting into the Zone – Your Garden's Zone

Newcomers to gardening are often baffled by all the talk of zones in gardening magazines, books, and catalogs, on plant labels, and online. These beginners often hear more-experienced gardeners, garden center staffers, and professional landscapers tossing around zone terms and numbers as well. You may sense that this zone business is some kind of secret code or language that's hard to remember or tricky to understand. It's not. It's really a simple (if generalized) system for describing climate so you can figure out whether a plant ought to be able to grow where you live.

Most plants grow best in roughly the same temperatures and humidity that human beings enjoy, but some plants like it cooler, some warmer. This chapter helps you to know and navigate the zones so you can put the information to use and pick out the right plants as you plan or add to your garden.

Focusing on Location — Different Hardiness Zone Maps for Different Folks

If all that gardeners ever grew were locally adapted plants, you'd have no reason to find out or concern yourself with hardiness zones. But of course, you want it all, right? You want to grow exotic goodies from distant lands or plants from allegedly similar but far-off places.

Indeed, you already do have it all: Peonies come from Asia, tulips hail from Turkey, and strawflowers are from Australia. So after your initial infatuation with a plant that's new to you, you can ask yourself, "Is growing this in my garden possible?" Finding out the plant's appropriate zone gives you an answer.

People commonly use hardiness-zone information for trees, shrubs, and perennial plants. Annuals don't get rated, or just don't count, because they live for only one growing season, anyway. The same is true for vegetables most of which hail from tropical climates. Hardiness zones are all about survival from one year to the next. (And anything tender grown in a pot can always be moved inside out of the weather, thus avoiding the issue.)

Just to complicate matters, different zone maps are out there, and some are better depending on where you live. The USDA Plant Hardiness Zone Map is the most prevalent one that gardeners in North America use, but others exist. The American Horticultural Society's Heat-Zone Map is more useful and popular for people in the Southern and Western United States, while Sunset's Garden Climate Zones Map, though complex, serves the Western states well. Furthermore, Canada also has its own hardiness map (see the Color Insert).

Looking at the world's plant hardiness zone maps

Every part of the world has its own hardiness zones, and most maps are set up the same way. The USDA Plant Hardiness Zone Map, for example, is a color-coded or shaded map, sometimes accompanied by a chart that expresses the same information. Check out the Color Insert to see this map; you can also see the map (and others) in many places after you become tuned in to it — a poster tacked up on the wall at your local garden center, the back flyleaf of gardening books, in the back pages of most garden magazines, tucked into the interior of your favorite gardening catalog, or online. The map is interactive so you can find your zone by entering your Zip code. You can check this map out at the National Gardening Association NGA) website at `https://garden.org/nga/zipzone/` or other online versions of the map, often found on the websites of mail-order seed companies and plant nurseries, which usually are interactive.

The United States Department of Agriculture published, and has occasionally modified and updated, this hardiness zone map of North America. The most recent map, based on climate data gathered at National Weather Service stations throughout the United States and by weather stations throughout Canada and Mexico, came out in 1990 and was updated in 2012. You can find 11 zones marking the average lowest winter temperatures, with Zones 2–10 divided into subzones.

Canada's plant hardiness zone map, suited for Canada's colder climate, shows nine zones, based on average climatic conditions and altitude of each area. The harshest zone is 0, and the mildest is 8. In addition, the major zones are further divided into subzones. For example, Zone 4 splits into 4a and 4b, where zone *a* is slightly colder than zone *b.* You can see Canada's map in the Color Insert or online at `http://planthardiness.gc.ca/`.

Here are a few other hardiness zone maps that may interest you:

- **Europe:** The Hardiness Zone Map of Europe presents a general overview of the European continent and can be broken down further into each European nation and the zones within it. You can see this map online at `www.gardenia.net/guide/european-hardiness-zones`. The Royal Horticultural Society (RHS) offers plant hardiness information for United Kingdom. Check this out on their website at `www.rhs.org.uk`.
- **China:** China's plant hardiness zone map covers arguably largest and most varied gardening spots in the world. You can view it at `www.backyardgardener.com/zone/china`.
- **Australia:** The Australian government has established a series of maps that many Australian gardeners use to gauge not only planting zones and climates but also rainfall. To view the plant hardiness zone map of Australia, go to `www.anbg.gov.au/gardens/research/hort.research/zones.html`.

You can find zone maps for South America and Africa online as well.

WHO ARE THE ZONE WIZARDS?

Exactly who determines what plants are appropriate for what zones? Well, the standard response is horticultural and climatological experts, whoever they are. Even though these climate maps are helpful, you have to think about them as purely a guideline. Gardeners have always been known to test the limits and try something that isn't supposed to grow where they live. And why not? You may prove the experts wrong.

WARNING

Traveler beware: If you buy a plant marked as perennial or hardy in the deep Southern United States or California and you live in a chilly northern region, the plant may be labeled such only for the area where it's sold.

Warming up to the heat-zone map

The USDA map, although enormously popular and widely used, has its limitations. For example, Zone 7 in Maryland is a world away from Zone 7 in Oregon, or north Texas, or the foothills of California's Sierra Nevada mountains. In many parts of the country, heat rather than cold dictates which plants are able to survive from one year to the next.

Thus, in 1997 (after years of study and research), the American Horticultural Society released its own map, the AHS Heat-Zone Map. This has proven quite useful to gardeners in the South and West. You can search online for this map or it is available `http://solanomg.ucanr.edu/files/245158.pdf`.

The AHS map has 12 zones. Relatively cooler Zone 1 is defined as having only one day of 86°F weather per year; sweltering Zone 12 has 210 days of such heat or more.

Research has shown that 86°F (30°C) is the temperature at which many plants — that is, their cells, or plant tissue — start to experience damage from heat. That's why that point became the baseline for laying out the heat zones.

U.S. gardeners in areas where the main source of plant stress isn't winter cold but summer heat prefer this system. Nurseries in hot areas are starting to refer to these zones more and more. If the heat-zone information isn't supplied for a plant you're interested in, look in newer regional reference books and plant catalogs and websites.

Savoring the Sunset zones

In the Western United States — a region loosely defined as the states of Arizona, Utah, New Mexico, California, Nevada, Idaho, Montana, Wyoming, Colorado, Oregon, and Washington — neither the USDA Zone Map nor the AHS Zone Map gives complete enough information. Complex and varied terrain and dramatic weather variations conspire to make this particular region unique.

The Sunset Publishing Company, based in the San Francisco area, devised its own Garden Climate Zone Map, which you can find online at `www.sunset.com`. Just search the site for Sunset Climate Zones. You may also see it in many publications, from books to subscriber-driven magazines to newsstand issues. Gardeners, landscapers, and nurseries in the West often refer to these Sunset zones.

Sunset's zone map contains 45 zones. Yep, 45. These zones actually cover the entire United States, Southern Canada, and Northern Mexico, and they're all very individualized and specific. For example, Sunset Zone 3 is defined as *West's Mildest High-elevation and Interior Regions* and covers much of the area east of the Cascades in the Northwest, where residents see snow cover in winters but also blazing summers. Zone 16 is *Northern and Central California Coast Range Thermal Belts*, from Santa Barbara County to Marin County; this area gets drying summer winds, fog, and a climate made mild by proximity to the ocean.

These Sunset zones can particularly empower a new or frustrated Western U.S. gardener, especially if the source of plants also uses the same zones. So ask at the local nursery or garden center — realizing, of course, that nobody stays in business for long by selling plants that don't thrive. Or go out and buy Sunset publications tailored to your particular zone and do some reading and research; then go shopping near or far when you know just what you want.

Reading plant hardiness zone maps

Take a look at the USDA Plant Hardiness Zone Map, either in the color section of this book or online by searching for it. It's available on many different garden sites. Notice that Zone 1, located at the top or northernmost part of the map, is coldest; Zone 11 is at the bottom, or southernmost part, and is warmest. In terms of hardiness zones established in the USA, Zones 1 and 11 represent the extremes. The bulk of the United States, though, fits into Zones 5, 6, 7, and 8. Originally, the zones were conceived to be 10°F apart.

As you study the map or chart, say you find that you live in USDA Zone 7. So you determine that this means

- You should be able to grow any tree, shrub, or perennial labeled "hardy to USDA Zone 7."
- You probably can't grow plants that are less cold-hardy, such as Zone 8 or 9 ones — your colder winters may harm or kill them.
- You can grow plants labeled for farther north, even more cold-tolerant ones said to be "hardy to Zone 6 or 5."

However, every rule has an exception. Most gardeners can stray one, maybe two USDA zones from their own when making plant choices and the gamble will pay off. See "Zoning Out: Breaking the Zone and Growing Season Rules," later in the chapter.

You often see a plant's projected USDA Hardiness Zones expressed as a range. For instance, most clematis hybrids are said to be "hardy in Zones 3 to 8." This statement means anyone gardening in Zones 3, 4, 5, 6, 7, or 8 ought to be able to grow one; the plant should survive your winters.

Basic zones are based on the average annual minimum temperature — in other words, as cold as winter gets. Thus, in the USDA Plant Hardiness Zone Map, Zone 6's lowest winter temperature (on average) is −10°F (−12°C).

Why base zone maps on cold temperatures? After all, other things doom plants, such as high heat, lack of water, too much water, too much or too little sun, and the wrong soil. But over the centuries of gardening, people found that cold is a better predictor of what will survive than any of those other (admittedly important) factors.

A HOT ISSUE: CLIMATE CHANGE AND ZONE CHANGES

The USDA revised its map in 2012. If climate change continues to accelerate as many people fear and as more and more scientists believe, the averages will rise. But for now, expect the numbers of the zones to remain the same, even if the details of each zone changes.

The most important revisions made to the existing zone maps so far have been to list finer details. For example, in the USDA map, the more central zones have been split into halves, so you can also see Zone 5a and Zone 5b and so on, with the *a* being somewhat colder and the *b* being somewhat warmer. Canada's map includes even more split zones.

Sometimes gardeners blame heat or cold for the death of their plants, but other reasons may be the causes, such as following:

- **Poor drainage:** Poor soil drainage is big killer of plants especially during a wet winter.
- **Dry conditions:** A very dry winter can also cause a lot of damage and even plant death for evergreen plants that continue to use and lose water during the winter. These plants should be watered when the ground isn't frozen, if needed. Sometimes it's winter drought, rather than winter cold, that kills a garden plant.
- **Winds:** Drying winds can be very damaging. Some gardeners provide windbreaks to relieve this problem.
- **Varmints:** Don't forget varmints, especially voles and mice that can do invisible underground root, stem, and bulb damage that occurs most in the winter when less of their natural food is around.

Climatological data comes from the horticulture industry, university researchers, botanic gardens, and so forth. Sometimes when a new plant enters commerce, the zone rating is conservative and after a while — with more people growing the plant in different areas and with more research — they find the plant to be more or less cold-tolerant than they originally thought.

Fathoming Frost Zones and Growing Seasons

Whether a plant can survive the winter isn't your only concern. You know annuals are going to live for only one season, but you also want to know how long that season will be. After all, you may not be pleased if your dahlias die before flowering or your tomato plants freeze before producing much fruit. Unfortunately, hardiness zones don't tell you much about the length of the growing season. Enter the frost zone map.

Zones are determined not only by temperatures but also by the *climate,* which combines temperature readings, rainfall, humidity, wind, air pressure, and other factors. Climates in frost zone maps are generally determined by *growing season,* the time during which — hold onto your hats — plants add new growth. The last spring frost and the first fall frost bookend the growing season, marking a nice period of frost-free days. Basically, this time period is your window of opportunity to plant and nurture and enjoy your home landscape, whether you're growing flowers or edibles. Make the most of it!

In really mild areas, such as parts of Southern California, Florida, and the Gulf Coast, the entire year is likely to be frost-free and wide open. The rest of us may feel we're not as lucky (but just remember that those folks, and their plants, have to contend with intense summer heat and humidity, not to mention bugs that are never killed by frost). Look at it this way: If you have a colder winter, you get a break, a chance to stop and relax — and a chance regroup and plan for an even better garden next year, after the last frost is past.

The length of a growing season varies somewhat from year to year but is generally about the same. You probably already have a sense of your growing season, but if you really need to know, finding out is fairly easy. Call your nearest Cooperative Extension Service office, ask a knowledgeable gardener or garden-center staffer, or watch your local newspaper for the frost dates (which can vary from one year to the next). Many gardeners also use frost zone maps, like the ones here:

- Bonnie's Plants (`https://bonnieplants.com/gardening/first-and-last-frost-dates/`)
- National Gardening Association (`https://garden.org/apps/frost-dates/`)

Here's how to calculate your growing season: Suppose you live in Denver, Colorado; your last frost is May 3, and your first fall freeze is October 8. That gives you 157 days in which to garden. Or suppose you live in Las Vegas, Nevada; your last frost is March 7, and your first fall one is November 21. You get 259 days of growing.

TIP

Frost dates given in tables and maps are only approximations because predicting vagaries of weather from year to year is next to impossible. If you're a higher-risk gambler, go for the earlier spring frost free dates and later fall dates; if you want to play it safe, choose the later last frost spring dates and the earlier fall frost dates.

TIP

Winter doesn't mean a gardener can or should be idle in the downtime. You can find plenty to do if you're so inclined to capitalize on the "shoulder seasons." You can be plotting for the future, starting seeds indoors with the plan to put them out in the ground the minute the last spring frost passes; you can be reading and discovering more about plants; you can be fussing with cleaning and sharpening your tools; you can enjoy yourself as you care for indoor plants; and you can be placing orders with mail-order suppliers — all activities that feed into the process and joy of having a wonderful garden.

Zoning Out: Breaking the Zone and Growing Season Rules

Despite all the zone maps and all the research, hardiness remains an inexact science. Although some plants turn out to be surprisingly tough, others succumb unexpectedly. The easiest thing you can do is to set your sights on plants said to be appropriate for your area. Here are some tips on deciding what you can grow, even if you're not sure about the zone:

- **Peek at your neighbors' yards.** Chances are that if a type of plant is succeeding right nearby, it can grow well, survive, and thrive for you, too.

- **Buy local.** When you get plants that were raised in your area (not in some distant place or coddled in a greenhouse), they're much more likely to be able to handle whatever your local weather dishes out. After all, they've already experienced some of the harsher conditions and survived so the seller can offer them to you. Production fields out back or right nearby are your cue.
- **Grow native plants.** Plants that come from your area or region — ones you've seen growing in the wild, perhaps, or certainly in local parks or botanic gardens — are sure to be well-adapted and set not only to survive but to prosper. How do you know whether a plant is native? Ask where you buy, or look it up.

  By the way, some local nurseries that promote or segregate native plants may also have nice *selections* or *cultivars* for you to choose from — improved versions of native plants (they may have smaller or more-compact size, different flower colors, bigger or longer-lasting flowers, and so forth); keep an eye out.

You can, however, force plants to grow in your hardiness or frost zone by taking advantage of *microclimates* (pockets of different growing conditions) or by using tools to extend your growing season. The following sections tell you how you can sometimes beat the zone system.

Managing your microclimates

Features in your yard, both natural and human-made, often modify the overall climate and create small areas with distinctly different environmental conditions (including hardiness zones). Here, your zone rating may go up or down by one or possibly even two levels, changing your planting options.

REMEMBER

A *microclimate* (a small, usually isolated area that is warmer, cooler, drier, or wetter that most of its surroundings) can be anywhere from a few feet wide to a few hundred feet wide. Examples of a microclimate include a low area, a south-facing area, the north side of your house or other structure, an exposed hilltop, a slope, any enclosed and sheltered area, a spot close to the foundation of your heated basement, and so on.

Look for marked differences in these areas:

- **Water:** Proximity to a pond, stream, wet ditch, or the ocean can make temperature fluctuations less dramatic.
- **Soil:** Different types of soil can create protective or stressful growing conditions. For instance, clay soils hold moisture and heat and thus can reduce stress in dry or very cold conditions. Very sandy soils drain well and are great where excessive water is a problem, but in hot and dry conditions, they can put plants under severe water stress.

- **Wind:** See how strong the winds are and how often you get air movement in a particular area. Winds are very drying.
- **Temperature:** One spot may be significantly hotter or colder than its surroundings. Note that cold air often flows over a landscape like water, settling in low areas and creating cold pockets.

  A useful tool for determining temperature variation is the *maximum-minimum thermometer* (also known as a Six's thermometer). This thermometer can measure the high and low temperature during a given time and can measure the extremes of temperature in a location. See Figure 3-1. This instrument is also available in a digital form. Recording thermometers can store temperatures and humidity levels over longer periods of time, and some can be synchronized to a spreadsheet on your computer. Apps come with some of these digital, remote-sensing devices and can track temperatures on you phone.
- **Light:** Note dramatic differences in amount of daily sun and shade. Human-made structures (yours or a neighbor's) as well as trees can contribute to these changing conditions.

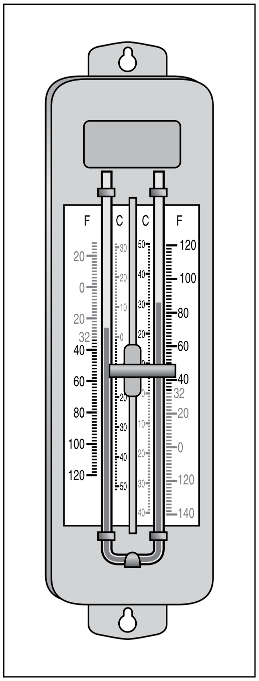

FIGURE 3-1: A maximum-minimum thermometer gives you an idea of the outdoor temperature ranges in your area.

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Cheating the system: Creating microclimates

Ah, here's where gardeners can and do cheat their zone ratings so they can successfully grow plants they shouldn't be able to and satisfy their zone envy. You can actually create microclimates (see the preceding section for general info on microclimates). Usually, the aim is to raise the temperature. For example, you can create a nice Zone 8-ish spot in a colder Zone 7 garden by employing a few gardening tricks:

- **Safety in numbers:** Planting less-hardy plants in groups helps make them more resilient and better able to withstand temperature extremes and drying winds. The local humidity is likely to be higher in a crowd, too.
- **Mulch:** A layer of organically rich mulch moderates soil-temperature fluctuations. It also helps hold in soil moisture so you don't have to worry about lack of rain or having to water quite as much.
- **Heat traps:** These structures help retain heat. Row covers, hot caps, and cold frames (see Figure 3-2) are well-known ways to trap heat, thus raising the immediate temperature and/or protecting vulnerable plants from cold weather. You can purchase heat traps or build your own. If you want to get fancy, you can add a heating cable to the soil of the cold frame with a thermostat. Then it becomes a hot bed or a miniature greenhouse.

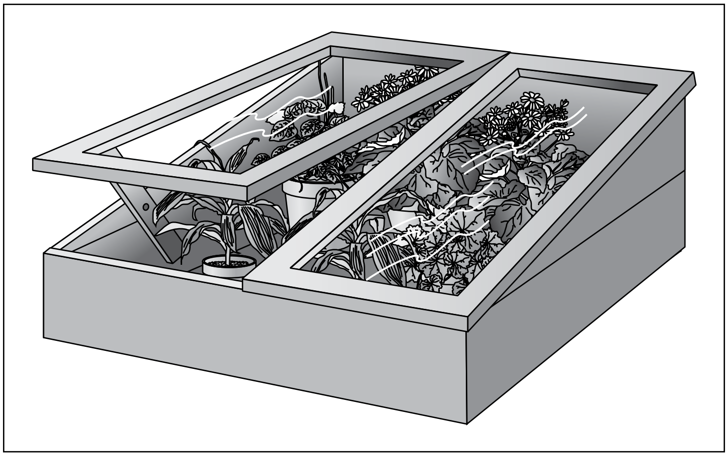

FIGURE 3-2: Putting a cold frame to efficient use.

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- **Water:** Proximity to water has a moderating effect on temperature, so you may have luck pampering a slightly tender plant by growing it next to a water feature on your property (natural or artificial).
- **Wind and sun blocks:** Fences, walls, buildings, and other structures offer shelter from drying winds and blasts of snow. Warmth and humidity can build up close to them, allowing you to coddle some tender plant. They often also create more shade, which can be cooling or inhibiting, depending on your plant's needs.

TIP

You can make a simple inexpensive temporary cold frame with bales of hay, placed in a rectangle and covered with a glass window or door sash.

Bending the rules to stretch your growing season

Maybe it's the rebel in you, me, and all gardeners. Maybe it's natural restlessness. Maybe it's an urge to make maximum and efficient use of available time. But gardeners do like to try to push the envelope in order to grow more or better or different plants.

You can dig up many tricks and techniques along these lines, and you certainly may come up with a few of your own as your experience grows. The following sections describe some favorite rule-benders that you can try if appropriate to your garden, your needs, and your climate.

Incorporating warming tricks

If frost will damage a plant, perhaps you can still have it outdoors by shielding it somehow. This idea applies both to setting plants out a bit too early in the spring and leaving them in the garden a bit too late in the fall.

Use row covers, blankets, *water walls* (heavy pieces of plastic that have sections filled with water that holds heat) burlap, plastic sheeting, or extra mulch (compost, weed-free hay, pine straw, which is actually pine needles), or pine boughs. Water well; hydrated roots can withstand cold and drought better.

JACK FROST AT BAY

You may find you tried to stretch the growing season a little too far, or perhaps the weather experts missed the mark on the date of the final frost. A big chill is creeping up, and you've already used mulch and blankets as much as you can to keep the plants warm. What's a gardener to do? Try a little emergency frost protection.

Spray vulnerable plants with water to slow or prevent plant injury caused by chilling (as Florida orange growers know all too well when a rare frost threatens). How does this work? Cold, dry air tends to draw the moisture out of leaves and from the ground; the spray of water raises the humidity levels, which in turn reduces moisture loss. Also, in order for water vapor to condense or for water to freeze, the water has to release heat, which in turn warms the plant. The plants need to be kept wet until the danger of freezing has passed; using a sprinkler system is the most practical way.

Bringing the plants inside

Potted plants, provided they're not too big or heavy, may be pretty easy to move indoors for a time. Most plants tend to grow less and be less productive or unproductive during the winter months, so you also want to reduce water and plant food. You may even cut the plants back and just keep the pots moist enough to keep the roots alive until spring returns.

Prized plants or special herbs that you want to save can also come inside when you dig them up out of the garden and put them in a pot. Again, they may not grow full force, but you can try to keep them alive. They may experience cooler temperatures inside but not the hard frost that would damage or kill them outdoors. If you plan to enjoy these plants longer, give them a warm and sunny spot on a windowsill or insulated sunroom. Water and feed moderately, and keep an eye out for pests.

To save space, you may want to cut these plants and root them indoors before planting them outside in warmer weather. See Chapter 10 for more information.

REMEMBER

By the way, dried herbs, canned vegetables, carefully stored (and cured, where applicable) fruits and vegetables all keep the bounty and memory of the garden alive in the off-season. So do dried bouquets and potpourris.

IN THIS CHAPTER

- Letting in enough light
- Figuring out fertilizer, compost, and mulch
- Testing for and adjusting pH
- Getting the right amount of water and air
- Ensuring plant stability

Chapter 4

Live Long and Prosper: Giving Plants What They Need

Time to get down and dirty! When you properly prepare the foundation of your garden, making sure plants can get what they need, success follows. The formula's as simple as that.

Well, maybe not so simple. Is your soil already in great condition? Do you have just the right amount of soil nutrients and rainfall so your garden can thrive without any help from you? Not likely! For most people, improving the soil they have and taking charge of garden watering are necessities if they really want their plants to thrive. This chapter tells you how to give plants a boost.

REMEMBER

Some of the information in this chapter may seem like common sense, but read each section carefully, anyway. I describe some techniques and have tucked in some tips that experienced gardeners use to save plenty of time, grief, and money.

The needs of plants aren't weird or complicated, but you may find that if you omit any of the recommendations in this chapter — either on purpose or unintentionally — trouble can follow. So consider this chapter a bit of a checklist as you get your garden ready for growing! Ready? Here you go. The work you do now can save you a lot of effort later.

REMEMBER

Improving a planting bed or garden prior to putting in plants or seeds is so much easier than doing so after. Do these tasks early if you can. If you can't, well then, at least make it a practice to dig really fabulous holes for each plant.

Welcoming the Sun — Let There Be Light!

Every plant needs at least some light in order to grow and prosper, but the amount really varies. Mushrooms (which are actually fungi), for instance, can grow in bins in a dim basement or shed; daisies and waterlilies, on the other hand, crave hot, full-on sunshine. Plenty of plants rest in the middle of these two extremes, of course. And some plants, like azaleas and daylilies, grow well enough in less-optimum light but don't flower well in the shade. In terms of labeling, just remember that *full sun* usually means six or more hours per day; *part-day,* of course, refers to less.

Leaves are the main "engine room" of a plant. For a plant to operate, thrive, and increase in size, all plant parts (except flowers) need to play their roles in photosynthesis. Roots draw in water, but the real energy production takes place primarily in the foliage. Light helps produce the fuel.

Long hours of plentiful sunlight, with varying angles throughout the day, are important so that every leaf — even the ones lower down on the plant — gets the chance to receive light. The good news is that no matter what light conditions your yard has to offer, at least something should be able to grow there. Sun plants and shade plants are labeled, and of course gardeners try to accommodate them. If you need plant ideas along these lines, not to worry — the plant chapters in this book have plenty of suggestions for you.

The warmth of the sun, even more than actual light, inspires flowers to unfurl. Sunlight from the east (morning light) is considered cooler, and western sun (afternoon light) can be scorching. Many plants prefer a site with some morning sun, even until midday, and late-afternoon shade. Other plants are able to endure even the hottest conditions. A plant's tolerance, of course, varies by region. You can place the same plant in a sunnier spot in the far North than in the South.

TIP

If you have plants growing in a spot that receives a blast of late-afternoon sun, be sure to monitor their water needs closely so they don't dry out. If you find they're struggling, you can help them by installing something to cast a shadow, such as an arbor, or by planting a tree or large shrub in just the right spot. Even companion perennials or annuals planted nearby can cast enough shade to bring needed relief.

Here are some signs that a plant is getting too much sun:

- Flower petals dry out.
- Leaf edges look burnt or dried.
- Flower color looks faded or washed out.
- The entire plant starts to flag.

And here are signs that a plant isn't getting enough light:

- Growth is sparse.
- Stems are lanky and spindly.
- The distance between leaves, where they're attached to the stems, is especially wide.
- You see fewer flower buds and, thus, fewer flowers.
- The entire plant leans toward the light sources.

Some of figuring out the proper location is trial and error — you're aware that roses like a full day of sun, but you really want that bush to go in the nook that gets afternoon shade. Give the spot a try. If the plant's unhappy, you can always move it to a more appropriate spot.

Facing Fertilizer Facts

Fertilizing — that is, supplying your plants with supplemental minerals — is an important part of gardening. I address the specific needs of specific types of plants in their respective chapters. What follows here isn't the last word on the subject but rather a quick introduction. A well-timed dose of fertilizer really boosts a plant. You can't argue with success!

REMEMBER

Fertilizer isn't plant food. The unique miracle about plants is that they produce their *own* food. The minerals that gardeners sometimes add to the soil can help plants grow even more robustly or flower more, but all plants in the wild do fine with no fertilizer. They derive their needed minerals from air and water and the soil they grown in. Table 4-1 looks at nutrients usually found in the air and water.

TABLE 4-1 Plant Nutrients in the Air and Water

Chemicals	Primary Macronutrients	Secondary Macronutrients	Micronutrients	Nonessential Nutrients
Carbon (C)	Nitrogen (N)	Calcium (C)	Boron (B) Chlorine (Cl)	Aluminum (Al)
Hydrogen (H)	Potassium (K)	Magnesium (Mg)	Copper (Cu) Iron (Fe) Manganese (Mn)	Cobalt (Co) Selenium (Se)
Oxygen (O)	Phosphorus (P)	Sulfur (S)	Molybdenum (Mo) Nickel (Ni) Zinc (Zn)	Silicon (Si) Sodium (Na)

Plants have complex systems in need of chemicals to help them produce their own foods. The three primary plant-growth elements, or nutrients, are as follows:

- **N (nitrogen):** Enhances stem and leaf growth (for most plants, nitrogen ends up being the most important nutrient)
- **P (phosphorus):** Contributes to flower production, fruit production, seed production, and root growth
- **K (potassium):** Ensures general vigor; helps plants resist disease

An all-purpose, balanced formulation can contribute to overall plant health, especially because the soil gardeners grow plants in has many times been depleted of nutrients through top soil removal or erosion. These top three nutrients are usually listed on the back labels of bags of fertilizer that you can buy in any garden supply store. They're listed in order as numbers on the package (N-P-K). A *balanced* fertilizer (one that contains the three most important elements — nitrogen, phosphorus, and potassium) may show up as 5-10-5 or even 5-10-10. Nitrogen-heavy lawn fertilizer usually has a high first number. You can find are plenty of other variations, depending on the intended use of the fertilizer.

A fertilizer label often tells you which kind of fertilizer is best for your particular garden. If in doubt about your garden's exact needs, talk to associates at your local garden nursery or supply store. Chances are that their own garden needs aren't much different from yours!

Always check the numbers on the fertilizer bag (refer to Figure 4-1 for an example). The bag tells you what minerals or nutrients you're paying for and the amount of each. Don't pay attention to the brand name on the bag. Just buy the cheapest one that provides the most nutrients. This figure shows this 50-pound (23kg) bag has 10 percent nitrogen, 10 percent potassium, and 10 percent phosphate.

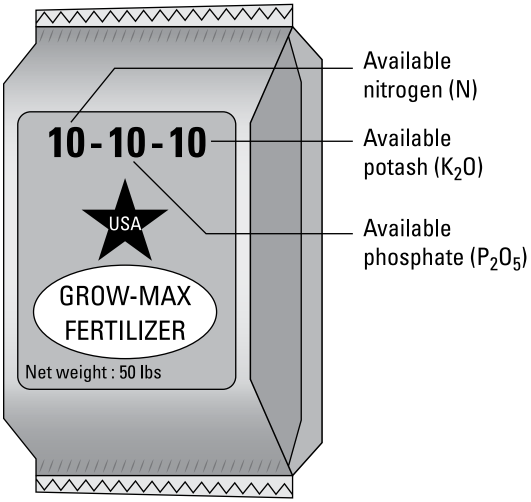

FIGURE 4-1: A fertilizer label can tell you important information.

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TIP

Certain plants demand more or less of the top three nutrients (for instance, lawn grass loves nitrogen best — consult Chapter 11 if you need to know more about that). But most garden flowers aren't specialists, which is why generally fertile soil is desirable and why all-purpose fertilizer is most commonly recommended.

Good soil also contains secondary nutrients, like calcium, magnesium, and sulfur, as well as some trace elements, called *micronutrients,* that enhance plant health and growth. You usually don't have to add these nutrients to the soil. However, soil tests sometimes indicate that gardeners should add micronutrients or secondary nutrients, especially calcium (see "Finding out your soil's pH" for info on soil tests).

Fertilizing good soil is often optional. If you have fertile, organically rich soil, many of your plants may do just fine without it — particularly if you develop the habit of amending the soil regularly (once or twice a year) with more organic matter. If your garden soil is organically rich, it's fertile and thus should have the major elements. If not, or if you're pushing your plants to peak performance, you can use plant food or fertilizer, natural or organic, to supply or supplement these important nutrients.

AN OFF-SEASON EXERCISE: ADDING ORGANIC MATTER WITH COVER CROPS

If you have a large flower bed or big vegetable garden, one fairly easy and undeniably efficient way to give it a dose of organic matter is to plant a *cover crop* at after summer is over and you've done some fall garden cleanup: You grow plants just to maintain and improve the land during the off-season to prepare the garden for next year.

Sow the cover crop according to the directions on the bag and let the plants grow. It should hog the area to sufficiently thwart weeds. And of course, a cover crop provides plentiful organic matter and limits erosion. Good choices include annual rye, buckwheat, clover, winter barley, and winter rye. Here are some tips based on your region:

- **In mild-climate areas:** Sow the cover crop in mid-fall. When the plants are about a foot high and are still soft and green, dig them in (if practical) or till with a rear-mounted rotary tiller (see Chapter 5 for info on rototillers). Then let the plants decompose or meld for a month or more.
- **In cold-climate areas:** Just plant the cover crop in fall and let winter kill it. The stuff will decompose at least somewhat, with or without snow cover. Till the area in spring, when the ground is workable again. Wait a few weeks before planting the area.

WARNING

Constantly fertilizing lousy soil isn't wise. Not only is it a lot of work and expense for you, but it's also a losing battle. Salts build up, plants are never really healthy in the long term, and the soil texture remains poor. You're better off increasing the organic matter and just using fertilizer as a nutrient boost for your plants — if they need it. *Organic matter* — once-living material that releases nutrients as it decays — includes compost, dehydrated manure, chopped leaves, damp peat moss, and ground-up composed bark.

Depending on what you use, how much, the plant in question, and so forth, the effects of adding fertilizer can be impressive. But they're not instant. Wait two weeks to a month before assessing the results.

REMEMBER

"Feed the soil, not the plants!" is an old gardening adage, and frankly, these are words to live by, folks. You can't go wrong taking the time and effort to build up soil fertility and structure at least once a year, more often if the opportunity presents itself. Dig in organic matter, add it to every planting hole (except when planting trees and shrubs), *top-dress* (sprinkle some on the soil surface at planting time), and *side-dress* (deliver more over the root zone midseason). Why? Plants and soil organisms like to eat it and ask for more.

What to use: Natural versus chemical

Quite honestly, only you can decide which plant food is convenient and successful for your own garden. A plant doesn't know the difference between one form of an element like nitrogen and another — it's nitrogen in any case. Some gardeners swear by one fertilizer and use only that kind; other gardeners use a variety of fertilizers. The only way to know which fertilizer works best for you and your garden is through personal trial and error. That said, you need to know a few things about natural and chemical fertilizers to help you make your decision. Check out Table 4-2 for a side-by-side comparison.

TABLE 4-2 Differences between Natural and Chemical Fertilizers

Trait	Natural Fertilizers	Chemical Fertilizers
Form	Are organically based; examples include compost (homemade or store-bought), manure, fish emulsion, cottonseed meal, bloodmeal, bonemeal, and liquid seaweed	Come in various forms, including granules, powders, and concentrated liquids; examples include bagged and boxed fertilizers in various formulations, including Miracle-Gro and Osmocote
Cost and maintenance	Pound for pound, are generally more expensive in terms of the amount of fertilizer they provide, but they also improve the soil and tend to last longer than chemical fertilizers	Are usually affordable and easy to maintain
Effects on soil	Tend to improve soil texture and quality	Don't contribute to long-term soil fertility
Presence of secondary nutrients and micronutrients	Can include beneficial minor elements	May or may not contain these nutrients; check the label
Effect on organisms	Feed helpful soil organisms	Usually have a neutral effect
Rate of release	Tend to release nutrients slowly, so plants aren't damaged, but results aren't always as dramatic	Are a fast-acting way to jumpstart plant performance but must be applied correctly so they don't injure or burn your plants; special slow-release chemical fertilizers are the exception

When to fertilize your garden

Whether you're using store-bought or natural fertilizer, such as compost or manure, most plants do best when fertilized at planting time, just to get off to a good start. Thereafter, you may fertilize again on a monthly or every six weeks. Reduce or stop when fall's cooler weather arrives. Fertilizer inspires fresh new growth, and you don't want that then — fall is a time for plants to slow down and approach dormancy, and cold weather can damage new growth. (You should, however, feed the *lawn* in autumn to stimulate root growth; feeding grass in the late spring pushes excess leaf growth that can lead to disease problems. See Chapter 11 for details on lawns. Again, for advice on specific plants, read more in the Parts 2 through 5 of this book.)

If you're using store-bought or chemical fertilizer, read the label to figure out how to deliver the fertilizer and how much to use. Some fertilizers work best if you dig them right into the soil; others are better delivered in dilute form when you water. The label can also tell you how much to use per square foot of garden area and how often to apply. For bagged organic fertilizer, read the label; otherwise, do some research on your own.

REMEMBER

More is not better! (Though if you're fertilizing with compost, using too much is almost impossible — see the next section.) The right amount of fertilizer is beneficial; too much is harmful. So don't get carried away. Remember that most fertilizers are types of salt, and high concentrations of any salt can kill plants. Always read the label and follow the directions carefully. To get the amounts right, you may have to pull out the tape measure and figure out how many square feet of lawn or garden you need to cover.

Some gardeners like to fertilize their plants half as much, twice as often. Just make sure you dilute properly and get your measurements right. (Gardeners often use this technique with roses and many houseplants.)

Composting: More Than Just Fertilizer

Yeah, I also talk about compost in the fertilizer section, but compost is useful and necessary to your garden in so many ways other than as plain fertilizer. Because it's organically rich, with good texture, compost is just about the best thing you can add to soil. What works best really depends on the type and fertility of your native soil, but you can't go wrong digging in quite a lot of compost. Compost lightens heavy clay soil and gives needed substance to sandy soil. Less-extreme soils can still benefit.

In any event, half-compost and half-native soil isn't excessive. Some really keen vegetable gardeners forgo native soil altogether and use 100 percent compost to grow incredible crops. Using solely compost is most feasible in raised beds. Roots relish it. You can get healthier, happier plants.

REMEMBER

Don't use soggy or overly dry compost. Compost should be fully decayed, dark in color and crumbly in texture. This issue is more significant with homemade compost than the bagged, store-bought sort. For homemade, you're fine if you take it from the bottom of the pile (most store-bought composters have a convenient hatch there). See Chapter 13 for info on how to make your own compost.

Whether you're planting a new rose, a young perennial, a handful of bulbs, or a bunch of annuals, always dig a hole both deeper and wider than the root ball. This practice gives you an opportunity to make a great new home for the plant, an area the roots can eagerly expand into. Either scoop some compost into the bottom of the hole (where a lot of root growth should occur) or mix compost with the native soil (try a 50-50 mix).

WARNING

All composts aren't the same. If you're buying this material at a store, know what compost is made of. Stay away from municipal sludge compost that may contain toxic heavy metals. Make sure the compost crumbles readily and doesn't have a bad smell. If you buy composed manure, be make sure it's well composed; it should have no noticeable bad smell. If it has a strong smell of the ammonia, which can kill plants, let it sit for a while on top of the soil and air out until the order is no longer noticeable.

WARNING

Skip this step of mixing in organic matter for trees and shrubs. The latest studies show that trees and most shrubs do better in the long run if you keep the plants in native soil; in amended soil, they may not grow past the planting hole. However, if you plant them in native soil, they can easily grow beyond the planting hole. (Flip to Chapter 12 for info on trees and Chapter 13 for more details on shrubs.)

In general, potted plants like a lighter medium. Go ahead and put a handful or two of compost in along with the potting soil, but don't be heavy-handed. Chapter 17 can fill you in on container gardening.

Quite a few gardeners make their own compost, a process that can take three months to a year to complete. Many gardeners also use a compost bin for this process, like the wooden one in Figure 4-2, though you can just pile the compost in an isolated and sectioned-off portion of your yard. Your compost pile should be kept slightly damp but not soggy. Stirring or turning the material every few weeks can speed up the decomposition process. When the compost is dark brown, is cool to the touch, and has a pleasant "earthy" smell, it's ready to use.

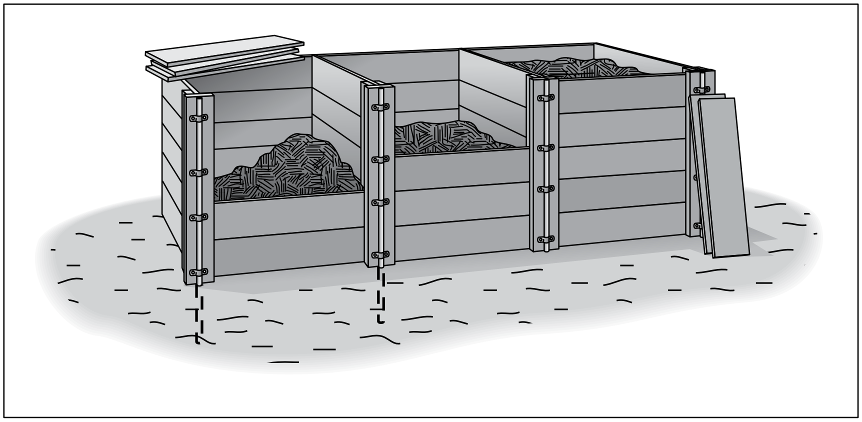

FIGURE 4-2: Many gardeners find wooden compost bins attractive and easy to use.

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Good material choices for mixing and making your own compost include

- Chopped-up leaves (smaller pieces decompose more quickly)
- Any young weeds that have *not* gone to seed
- Old lettuce or other salad greens
- Pruning from healthy plants

WARNING

Stay away from these materials for compost:

- Weeds that have gone to seed
- Any diseased or insect-infested plants
- Any plants that have been sprayed with herbicides including lawn weeds
- Raw wood because they take so long to decompose and can rob the soil of nutrients in the process
- Animal fats or spoiled meat because they often attract rodents

In general, any plant part that is soft and green will decompose into compost much quicker than brown hard materials. Some folks add some type of organic or commercial fertilizer to the compost pile to hasten its decomposition. Keeping it damp but not wet also speeds things up.

Demystifying Soil pH

The *pH* (and you can find various arguments about exactly what pH stands for) is the measure of your soil's acidity, and it's often a huge area of debate among gardeners. I try to keep this discussion simple so I don't make your head spin, especially if you have little or no acquaintance with chemistry.

Too low of a soil pH means the soil's too acidic, and too high of a pH means the soil is alkaline. Generally speaking, you want your soil pH to be on the *slightly* acidic side for the vast majority of garden plants. Extremes are rarely good. The pH scale ranges from acidic to alkaline — 0 to 14, with 7.0 as neutral. The really good news is that many soils are fairly close to neutral. The following sections discuss what pH level different plants prefer, how you can find out what the level is, and how you can adjust it if you need to.

Matching plants to different pH levels

Acidic or alkaline soil isn't bad soil or bad for plant growth per se. But the minerals in the soil that are important to plant growth and health have a tough time getting to the plants when the pH isn't right for the particular plant. Scientists have discovered that beneficial soil bacteria don't function well unless the soil pH is relatively close to neutral. These bacteria are important because they break down organic matter and make sure nutrients are in forms that plants can use.

Of course, some plants prefer or are well-adapted to pH levels that are a little more acidic or a little more alkaline. And some soils are naturally so; when in doubt, you can take your cue from the native plants.

Examples of plants that like acidic soil include blueberries, azaleas, rhododendrons, most other broadleaf evergreens, and heather. So in the New England states, where many soils are acidic, you see native blueberry plants. And if gardeners in that region want to grow blueberry bushes (albeit improved, bigger-sized fruit varieties), they should have good luck.

Examples of plants that like alkaline soil include penstemon, dianthus, baby's breath, and beets. So in the Southwest, where many soils are more alkaline, you see native penstemons. And if gardeners in that region want to grow these flowers (native species or improved selections), they should have good luck.

Finding out your soil's pH

You can do a little detective work by observing which native plants are thriving and then confirming that they have a preference one way or another.

Or you can run a soil test — use either an inexpensive kit or arrange one of those more-intense tests where you take soil samples from various parts of your yard and mail the dirt in to a lab. The nice thing about doing this more-intense test is that the lab report not only tells you the pH (and a few other useful things, like the nutrient levels in your soil) but also gives you specific recommendations on how to improve or alter your soil.

Adjusting your soil's pH

Of course you can adjust your soil's pH! Gardeners do it all the time when they know their lot in life is extreme soil, or even when they're just trying to please some special fussy plant. It's not a big deal. You just dig in something that nudges the pH in the direction you want it to go:

- **If your soil is too acidic:** To raise the pH, dig in dolomitic limestone, bonemeal, or wood ashes.

  How much? I knew you were going to ask that! The answer has to do with how much ground you want to alter or improve. If you really need to adjust the pH, I strongly recommend you get that lab-analyzed soil test, because the lab can give you good, tailored directions on what to do and how much amendment(s). See Table 4-3 for general guidelines. See Appendix B for the conversion to metric.

TABLE 4-3 Pounds of Limestone Needed to Raise pH (per 1,0000 Square Feet)

pH	Sandy Soil	Loam Soil	Clay Soil
4.0–6.5	60	161	230
4.5–6.5	50	130	190
5.0–6.5	40	100	150
5.5–6.5	30	80	100
6.0–6.5	15	40	60

- **If your soil is too alkaline:** To lower the pH, dig in some acidic organic matter such as peat moss, sawdust, well-chopped leaves from oak trees, or pine needles. Alternatively, you can add calcium sulfate, iron sulfate, aluminum sulfate, or powdered sulfur.

  If you don't let the sawdust, leaves, or pine needles decompose somewhat before adding them to the soil, they can leach nitrogen from the soil as they break down. And too much peat moss can waterlog the soil as well as make it quite acidic. Consider adding no more than one part of organic amendment to three parts soil. See Table 4-4 for general guidelines. Again, refer to Appendix B for the conversion to metric.

TABLE 4-4 Pounds of Sulfur Needed to Lower pH (per 1,000 Square Feet)

pH	Sandy Soil	Loam Soil	Clay Soil
8.5–6.5	45	60	70
8.0–6.5	30	35	45
7.5–6.5	10	20	25
7.0–6.5	2	4	7

Much Ado about Mulch

Mulch is a good gardening habit but not mandatory. But, ooh boy, do the benefits make it worth the effort! A really good job of mulching your garden usually

- Inhibits weed germination and growth (and not only are weeds unsightly, but they also they steal resources from your plants!)
- Holds in soil moisture, protecting your plants from drying out so fast
- Moderates soil-temperature fluctuations (this benefit is especially valuable during that turbulent-weather period in spring when you don't want your plants to be stressed)
- In cold-winter areas, protects plant roots from winter cold and helps prevent *frost-heaving,* in which plants are literally pushed out of the ground by the natural expansion and contraction of the soil as it cools off and heats up
- In hot-summer areas, helps keep plant roots cooler
- Depending on what you use, adds a bit of welcome nutrition to your garden as it breaks down

Sound like good enough reasons to use mulch? Yeah, I thought I'd convince you. Read on for the lowdown on mulches.

Knowing your mulches

First of all, I can't name any "right" or "best" mulch. Benefits vary in different climates and parts of the country. Some mulches are free, right in your own backyard; you can purchase others locally. Experiment to find out what you and your plants prefer. Table 4-5 provides the basic information you need to know about some of the more popular options.

TABLE 4-5 Comparing Mulching Options

Type of Mulch	Advantages	Concerns
Grass clippings	Is cheap, readily available, and easy to apply	Decays quickly, so you have to replenish it often; if you use weed killers on your lawn or nitrogen-heavy fertilizer, it may adversely affect other parts of the garden; can turn slimy if you apply more than an inch or so at a time; if the grass went to seed before you cut it, the grass seeds can germinate in your garden beds (yikes!)
Wood or bark chips	Looks neat and attractive; stays where you put it; is slow to decay	Pine bark mulch is fairly acidic, which you may or may not want for your garden; if you apply too deeply (more than 3 in [6 cm]) or apply a deep layer up against tree and shrub trunks, you may create a hiding spot for a bark-damaging rodent, especially during winter
Pine fines	Attractive fine texture. Also improves the soil.	Decomposes quicker than hardwood bark
Hardwood bark	Attractive. Doesn't easily wash away with a rain.	Can get to be coarse after a few seasons of weathering
Decaying leaves	Smothers weeds very well; helps hold in soil moisture	Isn't especially attractive; if it contains seeds, they can germinate and become a weed problem; if the leaves are soft, like maple leaves, the mulch can mat; if it's acidic (oak especially), it can lower your garden soil's pH; better if the leaves have been shredded and composed
Compost	Is free and plentiful if you have your own compost pile; adds nutrients to the soil as it breaks down	Makes a good place for weeds to take hold; fresh compost (especially if it contains manure or grass clippings) can burn plants

Type of Mulch	Advantages	Concerns
Pine straw	Not really "straw" but rather pine needles; can be inexpensive and attractive	Can be a fire hazard if used against a wooden structure
Peat moss	Looks neat and tidy; is versatile — also functions as a soil amendment	Can be expensive; if dry, will repel water; becomes crusty over time
Straw	Is cheap and easy to apply	Is so light it can blow or drift away; may harbor rodents, especially over the winter months; isn't very attractive for ornamental plantings
Hay	Is cheap and easy to apply	Many times it contains weeds seeds. May harbor rodents, especially over the winter months; isn't very attractive for ornamental plantings
Gravel, pebbles, or stone	Has a nice, neat look (though not "natural"); is easy to apply; won't wash away easily and will last a long time; doesn't need to be replenished over the course of a season in colder climates	Can allow weeds to sneak through; provides no benefits to the soil
Plastic (garden plastic, black plastic)	Keeps weeds at bay; holds soil moisture and warmth in	Watering and feeding are hard (you need to cut openings for plants); can be difficult to apply unless you're doing an entire area at one time; isn't very attractive; better used underneath a more attractive mulch

Applying mulch — how to and how much

If you're ready to start applying mulch to your garden, here's what you need to know to ensure you get the best possible use of your mulch:

- **When you plant:** Applying mulch right after planting something is easy. Use a shovel or scoop with a trowel. Spread the mulch over the root-zone area but not flush up against a plant's base or main stem (which can smother it or invite pests or disease).

  Depth depends on the sort of plant. Annuals and perennials are fine with an inch or so of mulch; shrubs, roses, and trees need 3 or 4 inches (7 to 10 cm) or more.

- **During the growing season:** Add more mulch midway through the growing season or whenever you notice it's depleted. You may have to get down on your knees or wriggle around a bit as you try to deliver it where it's needed without harming the plant or its neighbors. Again, use less for smaller plants, more for bigger ones.

- **In the fall or for winter protection:** Depending on the severity of your winters and the amount of snow cover you expect (a blanket of snow can act as a protective mulch, actually), you want to cover an overwintering plant well. You can cut down perennials first and then practically bury them under several inches of mulch. You shouldn't trim back shrubs and rosebushes at this time, but you don't have to be as careful as you were with midsummer mulching because the plant is no longer growing actively. For freezing winters, 6 or more inches around the base of these is good. Wait until the ground has frozen before applying a thick winter mulch.

REMEMBER

These amounts are guidelines only. You have to tailor them to your climate, growing season, and specific plants.

TIP

To limit erosion, don't excavate large areas that are on a slope without planting or at least mulching soon, especially during the spring, when rainy weather can cause washouts.

Tackling Watering Issues

Sure, without moisture, plants die. Everyone knows that. But you may not know why water is so incredibly vital. The answer is threefold, actually:

- Sufficient water pressure within plant tissues creates *turgor,* or rigidity, so the plant can stand up. A plant without turgor pressure collapses.
- Water keeps nutrients flowing through the soil, the roots, and the plant parts as they should; it keeps the show going.
- The most important function is to facilitate the chemical process of photosynthesis, which you may remember from biology class in school. The plant uses light, carbon dioxide, and water to make sugar (a pretty impressive trick). Without photosynthesis, plants can't grow or develop flowers or fruit.

Keeping a close eye on your plants is easier said than done, of course, but the following sections tell you what you need to know, to keep in mind, and to watch out for when evaluating just how much moisture your garden needs.

Providing the right amount of moisture

How do you make sure your garden has the right amount of moisture? Relying on natural rainfall would be nice, but natural rainfall is hard to count on (though it does kindly water your garden for you from time to time). Gardeners always seem to have to supplement the moisture, a little or a lot. You just need to keep an eye on things and pay attention to your plants. Read on for the warning signs of too much or too little water.

On the dry side

If you know what to look for, you can figure out your plants' watering needs. Look for the early warning signs of a water-stressed plant:

- Flower petals and buds are the first things to be jettisoned (or fruit if it has developed), because making and maintaining them takes so much energy and water.
- Leaves that were once shiny, bright, or dark green turn a dull grayish green.
- If the there is more water stress the leaves will shrivel.
- In more severe stress the stems of the plants will flop overt.
- The roots will eventually dry up, especially the newer root tips.

Obviously, if your garden is in this condition, it needs more water. A plant can generally recover from the first two warnings, but if it reaches the last three stages, there will likely be permanent damage so that full recovery of the plant sometimes isn't possible.

Bogged down

Telling when a plant doesn't have enough water may seem to be a snap, but keep in mind that there's definitely such a thing as too much water. If puddles form in your garden or an area of it's quite soggy, all the pores in the soil fill. When this happens, no free oxygen, which needs to get to the roots, is in the soil. (See the section, "Making Sure Your Plants Get Enough Air," later in this chapter for more information.)

Meanwhile, some plant diseases (like mildew and blight) travel via water and can easily develop and spread in soaked conditions. Sodden roots blacken and rot, and all the aboveground growth subsequently dies. Garden plants in these circumstances, of course, need less water. Refer to the section, "Dealing with drainage problems," later in the chapter to find out what to do.

Unfortunately, an overwatered plant looks the same as one that's underwatered! The reason is that an overwatered plant is actually suffering from dehydration because the roots have been damaged by too much water (actually, too little oxygen, because the water has displaced the oxygen); these roots rot and then can't absorb water, so the plant wilts. A plant that has been overwatered and has rotted roots will rarely recover from wilt when you apply additional water. Overwatered plants with badly rotted roots are pretty much doomed, and you're better off replacing them than trying to save them.

Determining which watering system to use

The amount of water your garden needs depends on what kind of soil you're using, what your climate is like, and what kinds of plants you have. Shallow-rooted plants, for example, need more water than deep-rooted ones for the simple reason that they're closer to the soil surface, which dries out more quickly in the heat of the sun. Deep roots can reach the more consistently damp lower soil layers. Soil types make a big difference too. For example, heavy clay soils hold onto water longer than sandy quickly draining soil.

For many gardeners, getting enough water to their gardens is the biggest gardening challenge. If you're crunched for time or have a large area to water, installing in-ground sprinklers and irrigation systems may be a good idea. Employing the use of a regular watering system, such as drip irrigation or an in-ground system, is the best approach to ensuring a consistent moisture cycle to grow happy, healthy plants.

You can find various easy-to-install, do-it-yourself drip and sprinkling systems at very reasonable prices. I've installed such systems myself, and I'm no plumber. I have them in all my garden beds. No dragging hoses for me! The drip systems are extremely efficient and effective water conservers.

Of course, you can always water your garden yourself, by hand, and really that's a great way to do it, because you can personally inspect each plant. For details about equipment like soaker hoses and portable sprinklers to help you with your watering, please check out Chapter 5.

Whether you water by hand or use a system, here are some things you may want to keep in mind:

- Watering your garden early in the morning, before the sun is fully overhead, is usually best. Watering at night can make plants susceptible to leaf and root diseases.
- Some plants in your garden, such as melons, may require more water than others, in which case watering by hand is probably best or you may need to use higher volume sprinkling emitters.
- If you don't have an outdoor spigot close to your garden for convenient hose hookup and watering, a rain barrel may be a good substitute for keeping water close to your garden. Add a screen to the water intake on your water barrel to prevent it from being plugged up by leaves, bugs, and other debris. Various mail-order suppliers sell rain barrels.

WARNING

- Make sure you get a barrel that's tall enough so pets can't get in, or put on covers to reduce drowning risks to pets, varmints, and children. To keep mosquitoes out, use products like Mosquito Dunks, which are donuts of a type of bacteria that's harmless to humans but deadly to mosquito larvae.
- Usually, watering the soil rather than the leaves is best because the roots are what absorb water, and they're in the soil. Also, wetting the leaves can result in more disease problems. Still, on a very hot or windy day, watering the leaves can reduce wilt and lower leaf temperatures.
- Unless you have a very large garden, sprinkler heads that you attach to garden hoses are usually better suited for lawns than gardens. If you decide to use one, make sure the sprinkler covers the entire garden area evenly and doesn't water things you don't want watered, like your lawn furniture or windows.
- No matter what kind of garden you have or which watering system you use, infrequent deep soakings are better than frequent shallow watering because this watering encourages deeper root growth, which is better able to withstand dry periods.

DECIDING WHETHER YOU NEED PROFESSIONAL HELP

Valves, risers, timers, controllers, moisture sensors, and pipes, oh my! If all these parts and how they should go together makes your head spin, hire someone. Hire someone who's done it hundreds of times; find such a contractor via your local garden center, in the yellow pages, or through a reference from a friend or neighbor. (Get a written estimate for the work, labor, and parts, and check references.)

However, if you're an affirmed do-it-yourselfer, handy, and confident, by all means, install your watering system yourself. Check with your local utility companies — gas, water, and electric — (if the system's underground) before doing any digging to avoid costly and potentially dangerous accidents.

Many garden centers and online irrigation companies have do-it-yourself kits that may make the job easier.

Cutting back on watering

Even if you don't live in an area experiencing drought, you don't want to waste water, no matter what you pay for it or how much you have to use. Remember that for most efficient delivery, water in early to mid-morning — after the dew has dried but before the heat of the day sets in and much of the water evaporates. And mulch, mulch, mulch individual plants and entire beds to hold in the water right by the roots, where plants most need and appreciate it. I go into more detail about mulch earlier in the chapter in "Much Ado about Mulch."

TIP

Wherever possible, build up a basin of mounded-up dirt or mulch around the edge of the root ball of each plant at planting time. Water goes right in the basin and soaks directly down into the root system instead of running off onto the lawn or driveway or elsewhere where it isn't needed.

The method of delivery can also save water: In-ground irrigation systems are wonderfully efficient, as I mention earlier in the chapter, and soaker hoses are also good. Drip systems shouldn't produce any appreciable runoff on slopes. And although some sprinklers are good, others are very wasteful. Check out mail-order catalogs that specialize in types of sprinklers. They're filled with good information on how to choose the right ones.

TIP

Depending on what kind of soil you have and how well it absorbs, you may find it worthwhile to run the water slowly rather than fast, and perhaps ten minutes on, ten minutes off — either or both of these techniques often drenches an area quite efficiently with little waste.

Rain gauges are useful for measuring water when you apply it with overhead sprinklers. For drip systems, run them for an hour or two and then dig down into the soil around the plant to see how far down and wide the moisture has penetrated — you may be surprised. Run the system longer if it hasn't yet penetrated deep enough to reach the root zone. After you do this exercise a few times, you should know how long to run the system each time you water. Some of the emitters have calibrated flow rates that can help you calculate the water you're using more exactly if you're so inclined.

Another way to cut back on the amount of watering you need to do is to use drought-tolerant plants in your garden. Gardeners in the Southwestern portion of the United States are particularly good at this type of gardening, largely through necessity. Drought-tolerant plants include cacti, succulents, ceanothus, rock rose, native dryland plants and their cultivars (such as penstemon and gaura), and deep-rooted perennials like prairie natives and their cultivars (such as baptisia, liatris, black-eyed Susans, and purple coneflowers).

Dealing with drainage problems

You know you have a drainage problem in your garden when heavy or even moderate rain leaves puddles that take forever to drain. Or you may find out, to your dismay, that under a few inches of okay soil in your yard is a stubborn layer of *hardpan* (most people discover this water-resistant barrier — often packed clay — when they dig a deeper-than-usual hole, say, for planting a big shrub or a tree).

TIP

Drainage test dig a hole about 1 foot (24 cm) deep and fill with a gallon (4 liters) of water. If the water doesn't completely drain out of the hole in one hour, you have a drainage problem. Consider some of the remedies I discuss here.

Really damp areas (especially in humid periods or in shady spots) are slow to evaporate water, whether from rain or from your sprinkler. Then plant diseases can get begin, particularly on foliage. The answer here is to try to improve the air circulation: Prune overhanging growth and give individual plants more elbow room. And when you're in charge of watering, supply it to the roots instead of allowing it to splash the entire plant.

TIP

Obviously, bad drainage isn't good for any garden plant, not just trees and shrubs. If you're smart or lucky, you can deal with the problem before you plant or redo an area. Here are some options, from the simple to the high-tech:

- **Try improving the soil.** Dig in lots of organic matter. Soil with a high organic-matter content allows excess moisture to drain through while absorbing needed water. Sounds paradoxical, but it's true. (For info on improving soil with compost, check out the earlier section titled "Compost: More than Just a Fertilizer.")
- **Build and garden in raised beds.** You control the soil within, and thus it drains well and your plants are happy. Problem averted.
- **Create a rain garden or a bog garden, and plant only water-loving plants.** Water-loving trees and plants include maples, some lobelia, carnivorous plants, willows, astilbe, ferns, filipendula, beebalm, mint, various sorts of irises, and canna.
- **Route water flow away from the garden area.** Just get out there with a trowel or shovel and create some diversion channels. Of course, you don't want to send the problem to another important part of the yard or foist unwanted, excess water on your neighbor. Send it down the driveway and on into the street, or into the gutter. This water needs to head for the storm drains. (If this plan isn't practical, dig a hole nearby, fill it with gravel, and route the channel there.)

  REMEMBER

  Fertilizer runoff can harm rivers and streams, so if you use this technique, be especially careful that you don't use excessive fertilizer and that you apply it at recommended times so the plants use the nutrients rapidly. See the earlier section "Facing the Fertilizer Facts" for info on proper application.

- **Make a gravel channel.** Follow the advice about rerouting water flow, but dig the channel somewhat deeper and fill it with crushed gravel or pebbles. You can hide it from view for some or all of its length by scooping a little soil over it. It'll still do its job of slowly but surely taking the water away.
- **Use perforated plastic pipes, lightly or deeply buried, to divert the water to where you want it to go.** Home supply stores sell pipes specifically for this purpose. These pipes usually come in various forms and sizes of plastic; clay tiling is also available, but it's too heavy and expensive for most homeowners.
- **If the problem is severe and you can't seem to solve it, drainage tiles, a French drain, or a curtain drain are options.** Installing one of these systems can be a very expensive and involved process. Hire someone experienced to advise you, explain the options, and install.

Making Sure Your Plants Get Enough Air

A sometimes overlooked necessity for plant life is air (and not just carbon dioxide). Without air, plants struggle and perish. Yes, the free oxygen in the air is part of the photosynthesis recipe, produced by the plants themselves, but another practicality is even more visible here. Air movement around your plants prevents disease, especially fungal diseases that gain a foothold when the air is too "close" and humid and when wet leaves can't dry or don't dry quickly.

Underground, oxygen between the particles of soil is important. Plant roots, or more accurately, their little root hairs, are busy. They take in that oxygen, absorb water, and then release carbon dioxide. If this process is thwarted, as in waterlogged soil, the roots can't function properly, they begin to rot, and the plant surely suffers.

Here are a few things you can do to make sure your plants are getting plenty of air:

- **Don't let soil get compacted.** If it's quite wet, don't walk on it or dig in it. Loose soil is airy soil.
- **The addition of organic matter, especially in dense clay soil — something I keep harping on, I know, but it's so important — helps keep it aerated.**
- **Keep your soil healthy.** The natural organisms in the soil will help aerate the soil with their digging.
- **Make sure your garden is well-drained (see the preceding section on drainage).**
- **Don't crowd your plants together in the garden bed if they're susceptible to mildew or black spot.** Give everyone a little elbow room!

IN THIS CHAPTER

- Looking at gadgets for digging, stirring up the soil, and battling weeds
- Identifying tools for pruning, hedging, and making other cuts
- Powering up with gas- and electric-powered tools
- Hauling with wheelbarrows and carts
- Checking out slick watering tools

Chapter 5

Gathering Your Gardening Gear

You can find deep and abiding pleasure in a good tool, in finding and using the right equipment for the job at hand. This statement is as true for gardening as it is for, say, cooking or woodworking. In this chapter, I survey the tools you probably need (and want) to aid you with your gardening, and I advise you on their selection and care.

Here's where you get to roll up your sleeves at last and get into the really satisfying work that's the heart and soul of successful gardening. Quality, well-chosen tools allow you to put your plans into action! This chapter covers the most common and general tools you likely need for successful gardening, and it includes pointers on how to pick the best ones.

REMEMBER

The difference between the right tool and the wrong tool is the difference between back-breaking labor and joyful efficiency. Also, using the tools correctly is key.

Digging into Those Digging Tools

Dogs (and kids) often dig for no apparent reason, for the sheer pleasure of getting deeper into the ground and letting the dirt fly. Gardeners, on the other hand, dig with a purpose — to create a new planting bed or hole, to create a trench, or to harvest a delicious, homegrown root vegetable. Nonetheless, gardeners have the right to have fun in the dirt! And having fun turning the soil is possible when you have the right tool. These sections address all sorts of shovels, spades, and trowels to consider when gardening.

Getting down with shovels and spades

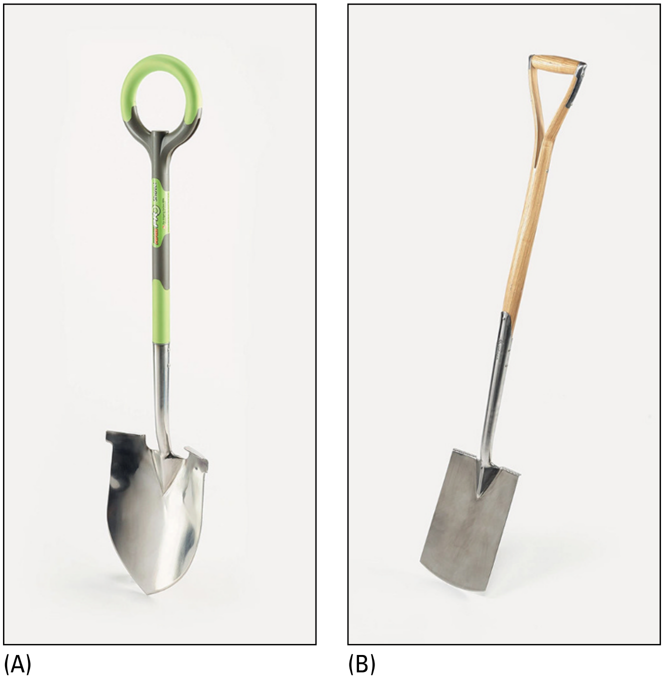
Shovels and spades are digging tools, and you may be astounded at the array available. "Necessity is the mother of invention," as the adage goes, and never is this truer than in the great variety of shovels in the world. Each one was invented by someone with a specific kind of digging in mind. However, generally speaking, digging tools fall into two main types: shovels and spades. Choosing one within a type requires matching it to your needs — the sort of soil it'll be re-digging, plus your own height and body strength.

REMEMBER

What's the difference between a shovel and a spade? Well, generally, it comes down to the shape of the digging edges (see Figure 5-1):

- **Shovels have rounded edges.** The rounded tip is meant to allow easy, sword-like penetration of a variety of soils and materials. You also want a dish that's stiff and strong and able to hold dirt.
- **Spades have square edges.** The main purpose of this digging tool is to lift, move, and throw with ease. It's supposed to be easier on your back — just slightly flex your knees and thrust it in and out of the pile of leaves, compost, or topsoil you're working on. (It's also good for mixing concrete and delivering it neatly to its appointed spot.)

When you go shovel (or spade) shopping, you may observe various grades and prices. ***Remember:*** You get what you pay for. A so-called homeowner or economy shovel looks good enough, but it may not stand up to tougher jobs or rocks in the ground. Contractor shovels, on the other hand, have a thicker blade and strong attachments for forging where the blade meets the handle. Be sure to pay close attention to the labels to know what kind of shovel you're looking at. You can usually find a range of quality at a single store.


(A) (B)

Published courtesy of Lee Valley Tools

FIGURE 5-1: You can see how the blades of a shovel (A) and spade (B) are constructed differently.

Forged shovels and spades are the best because they're made of a single piece of metal. Stamped ones are okay for lighter jobs, but because the metal is cut from a single thickness, they're not as strong or tailored to a job.

REMEMBER

To determine whether a shovel is well-made, examine where parts come together (assuming the shovel you're contemplating isn't all one piece). Rivets and welding points are weak spots, though often necessary. Avoid anything with sloppy workmanship. The following outline other things to look for.

A strong shaft

The reason the shaft is straight is simple: Bends or curves create weak or stress points. Do check that the tool you're thinking of buying has a nice, straight handle. Material is equally important. Consider the following materials:

- **Wood:** You want a strong, solid, splinter-resistant wood; ash is considered the best, with hickory in second place. Maple is okay, too, though it's heavier and can break in unpredictable ways. A "solid hardwood handle," although desirable, is also rather vague.

- **Heavy-duty plastic:** The heavy-duty plastic shafts are also very durable and don't rot or splinter.
- **Metal, fiberglass, and steel:** Metal (including steel) and fiberglass handles are available.

WARNING

Super strong shafts sometimes used by commercial nurseries have solid steel shafts, but for most folks, these types are too heavy to use. Steel shafts may transport uncomfortable or numbing vibrations into your hands and arms. Also, metal tools can be darn cold during the winter (and they conduct electricity if you happen to encounter electrical live wires — yikes!).

Here are other features to consider:

- **The steps or treads found on the tops of the blades:** Wider ones make digging more comfortable.
- **The shaft length:** People often overlook this important feature. If the shaft is too short, you'll find yourself bending over too far, which is asking for back pain. The correct length is somewhat determined by your height. The most common length for a shovel is about 28 inches and will best suit a gardener between 5-5 and 5-9. If you're taller, look for a shaft length of about 32 inches; if you're shorter, look for one with about 26 inches.

  Shovels with long shafts are handy for providing extra leverage to pitch and throw material. Shorter handles are useful for working in smaller spaces.

  The bottom line: Get a shovel in which you're comfortable. Try it out if you can before you buy it. However, if you're shorter or taller than the standard, you may have to shop at a specialty tool shop or go online to find a shovel that suits you best.

WARNING

Painted shafts? No doubt they're attractive in their jaunty color and smooth texture, but beware: A coat of paint may be hiding weaknesses or flaws, such as knots or grafted pieces of wood. Better to go with a plain, unadorned model so you can see what you're getting (and paint it yourself at home if you want).

The correct handle

You need good leverage; the right grip, well-designed and durably constructed, delivers just that. Seek a comfortable fit for your hand and peer closely at the rivets that attach the handle to be sure they're neatly installed and flush. Here are the three main types of handles you'll see:

- **D-handle:** You'll likely see the classic D-handle most often, usually made of durable but lightweight plastic (which can and does crack or break down over the years due to use and exposure to sunlight, though you can certainly get many good years out of it). A good handle is easy and comfortable to hang onto, especially during twisting and lifting motions.
- **YD-handle:** A variation on the D-handle is the YD handle, which is longer and potentially sturdier. The two sides of the handle converge in a Y, and a crosspiece of wood (usually metal-reinforced) joins them. This design has the advantage of dissipating twisting forces.
- **T-handle:** This handle is excellent for two-handed pushing work, such as in the shallow-angled spades that gardeners use to edge planting beds or peel off turf or topsoil. The drawback is that the impact of your digging travels straight into your wrist, so look for a coated handle or wear gloves to alleviate the shock, at least somewhat.

A good angle or cant

Cant refers to the angle between the head of the spade or shovel and the ground. A lower angle is best for digging and holding soil; a steeper angle is better suited to lifting and tossing soil and other materials. To check the cant, place the tool on the ground and see how flat it lies.

A well-designed frog

The *frog* is the open-backed tube or socket, meant to fit the head of the tool to the shaft. It's vulnerable to collecting dirt along its length, so unless you assiduously clean your shovel after every use, the dirt eventually starts to rot the wooden handle. Some shovels have metal welded over this area to prevent that, which helps, although the front side is still a point of weakness.

Trowels: More than just little shovels

A good trowel is an indispensable gardening friend, with you through thick and thin for many years. You'll probably use this tool more than any other one, so pick one that feels right to you when you hold and use it. As with shovels and spades, many different kinds of trowels are on the market. You have plenty of choices, so be sure to pay attention to the labels at the store and ask for assistance if you have trouble determining which trowel is right for you.

As you may have gathered if you read about shovels in the preceding section, good-quality materials make for a more effective, longer-lasting trowel. The blade (from cheapest to best) is made from

- Stamped metal
- Aluminum
- Forged carbon steel or (no rust!) stainless steel

Top-of-the-line trowels feature a carbon steel blade that may or may not be epoxy-coated to resist wear and rust or a heavy duty stainless steel blade.

As for the handle, keep the following in mind:

- Strong wood or strong plastic is what you want.
- For wood handles, ash or hickory is best.
- Avoid cheap trowels of lightweight stamped steel, because they'll to bend or even break at the slightest challenge. They're a misery to use and won't last long.

REMEMBER

A sign of a quality trowel, one that can stand lots of use, is one whose wooden handle meets its metal blade in a strong and lasting manner so it won't bend or break, of course. Cheap ones employ a simple tang-and-ferrule design. The *ferrule* is the circular clamp that holds the blade to the handle, and the *tang,* or *shank,* is the part of the blade extending into and usually through the ferrule. After a while, the ferrule tends to loosen and rattle around on the trowel's shank. This statement is not to criticize all tang-and-ferrule attachments; good, solidly anchored ones exist and are sometimes even reinforced with rivets. The alternative is a one-piece metal trowel.

TIP

The one-piece metal trowels may send tiring shockwaves into your hands as you work and be icy cold to the touch, but clever manufacturers have solved this problem by coating the handle with rubber or PVC plastic. For other types, seek a smooth wooden handle so you don't get splinters or blisters. In any event, you should be able to squeeze the handle comfortably, with little stress to your wrist.

Some trowels have a hole drilled into the very top part of the handle, perhaps with a string or leather thong loop for hanging and storing the tool when it's not in use. Though this feature may seem frivolous, it can be a handy extra if you're the sort of person who needs to be reminded to bring your gardening tools indoors and clean them up after use. Another feature you may appreciate is a ruler stamped or etched into the blade — built-in rulers are helpful when you're planting various sorts of bulbs or other flowers that require varying planting depths.

I've used many trowels in my time, and Figure 5-2 shows my current favorite. It looks quite different than the traditional hand trowel in its shape and construction. I love it because it's stamped from very heavy-duty steel, which means it doesn't rust. Despite pushing the limits, I haven't bent this tool because it's so sturdy. The plastic handle that covers the top of the one-piece trowel gives you a good grip. It comes in various lengths, and the front of the trowel is embossed with an English and metric ruler.

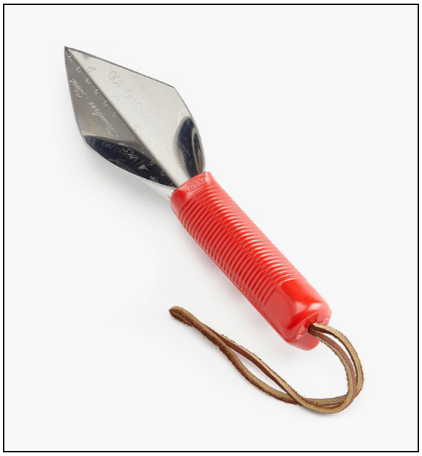


FIGURE 5-2: My favorite trowel is made of one-piece of solid stainless steel.

Published courtesy of Lee Valley Tools

Garden forks: Not for dining!

Although not an essential garden tool, many gardeners come to find that a garden fork is quite handy and more agile than a spade or shovel for some digging jobs. You drive this shovel-size tool into the soil and then pull back on the handle and rock it to break and loosen soil. It's useful for digging up bulbs and root crops, including onions and potatoes. It's also good for scooping jobs (moving compost or hay from one spot to another, for instance) and for digging up a shrub or large perennial and getting the full rootball without a ton of soil. Garden forks tend to be shorter than pitchforks and have shorter, flatter tines.

Yes, you can find many different kinds of garden forks, though you'll notice that the four-tine model is standard. As with shovels and trowels, pay close attention to what the labels say and ask a store clerk for assistance if you need help determining which type of fork is right for you.

A strong ash or hickory handle is desirable. As for the prongs, they'd better be strong — very thick stamped steel or forged steel or high-carbon steel, maybe slightly incurved to resist the temptation to bend, with tines that taper to a point.

Solid-socket construction where the handle meets the tines is critical because this tool can really take a beating in use, and you don't want it to bend or break.

REMEMBER

You want widely spaced tines so you expend less effort when digging.

Dabbling in dibbles (or dibbers)

A *dibble* (or dibber) can be a very nice tool to have. Essentially, it's a hand-held poking tool that creates a planting hole in the ground. The tool is generally cylindrical and comes to a point, somewhat like a stubby, sharpened pencil; larger ones may have a curved handle. End to end, the dibble may be up to 10 or 12 inches (25 to 30 cm) long. Fat ones are popular for bulb-planting or creating a hole for a larger seedling, while skinny ones are great for planting seeds or setting out smaller seedlings.

Why bother with dibbles? Because like any good tool, they make a project easier — your hand becomes much slower to tire. You can purchase one of many examples available from your local garden supplier, or you can make your own by sharpening a broken hoe, shovel, or broom handle. For small jobs, you can use a sharpened pencil or wooden dowel.

Though a simple tool, a good dibble (see Figure 5-3) is often a two-part item. The top half, or handle, allows a comfortable grip and thus is usually wood or strong, durable plastic. If designed well, you should be able to grab the dibble almost like a pistol or screw gun, which reduces stress to your hand and wrist as you work. In any event, the bottom or digging or prodding half is best made out of strong, stiff metal, such as carbon steel.

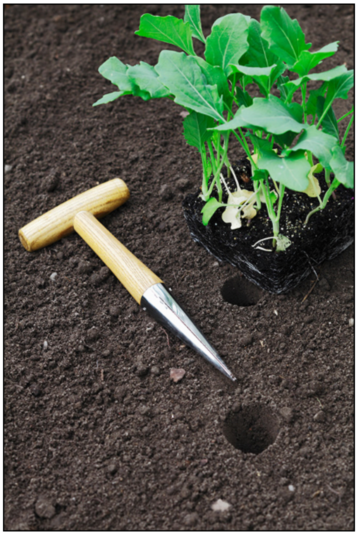


FIGURE 5-3: Dibbles make transplanting into the garden easier.

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TAKING CARE OF YOUR THINGS: GARDEN TOOL MAINTENANCE

Keep your tools out of the weather, no matter what they're made of, and bring them indoors after use. Otherwise, dampness causes wood to rot, and exposure to sunlight breaks down plastic parts. Plus you don't want anyone running over them on foot or with a bicycle or vehicle — for their safety as well as the good of the tool itself. And make sure you store sharp objects away from where kids or pets can get to them.

Keep tools clean. They're always going to have some dirt, soil, or other material adhering to their blades after a project, but take the time to hose or wipe it off — this simple step really, really prolongs a digging tool's life. Just make sure the tool is dry before storing, because many tools are made of high carbon steel, which rusts easily if not coated in rust-resistant material. Spraying or wiping them with a thin coat of oil does wonders to stop rust.

Sharpening digging tools also makes a real difference when using them.

WARNING

Owing to its smaller size and the scope of appropriate planting projects (namely, planting bulbs or seedlings), you shouldn't be stooping or bending when using your dibble. Sit or squat on the ground, or kneel. This position also allows to you keep an eye on hole depth. Don't get carried away, lazy, or tired and start plunking things into too-deep holes!

Cultivating 101: Clues to Quality Tools

What exactly is cultivating, anyway? After all, this is gardening I'm talking about, not *farming.* All it really means in the context here is stirring up the soil and fighting weeds. These jobs, quite honestly, always seem to go hand in hand. You need to do them for the good of the soil and the survival and prosperity of your garden plants. Cultivating tools exist to make the job easier and more efficient, regardless of whether you're tending a vegetable garden or a flowerbed.

Removing whatever is growing in a spot (whether weeds or wild plants or old lawn, or whatever) creates open ground — which, like a good gardener, you should improve prior to planting (see Chapter 4). So you do everything you're supposed to do, and then what happens? A crust forms. Water may puddle and seedlings may strain to poke through. You need to gently break it up, and that's where cultivating tools come in.

Weeds love freshly cleared ground. They're fast; they're aggressive. They creep in, or birds and other animals deliver them. Seeds that had been slumbering below the surface now have the light, warmth, and moisture they need to sprout. However they arrive, weeds elbow out the plants you want and hog all the resources to boot. What to do? Mulch if you can (see Chapter 4 for details) and cultivate!

No Santa Claus: Ho, ho, hoes

All sorts of hoes are available, and the one or ones you choose to invest in is partly a matter of what you feel comfortable using and what you need them for. For maximum efficiency, both pushing and pulling action is desirable. At any rate, hoes tend to be long-handled, which is fine, but their blade also needs to be right for the place where you use it. If you'll be working in cramped spaces, like the rows of a vegetable or herb garden, pick a narrow-bladed one, of course. About 6 inches wide is standard.

A good hoe should not be a lightweight or wimpy tool — you mean business. Choose one with a strong, durable hardwood handle (such as hickory or ash). Forged steel is standard for the blade. If either of these parts gets worn out or damaged, replacing it is an option. As for the point of attachment, the handle should be snug and secure in a hole in the top of the blade, even reinforced with rivets, so there's no risk of its falling off.

My two favorite hoes are the half-moon and colinear hoe (see Figure 5-4). These two are for finesse. They're used to gingerly remove weeds without doing damage to surrounding plants. To do the best work, make sure they're sharp. You lightly drag them along the soil surface to cut off small immature weeds. Both are a little harder to find than standard hoes, but they're worth the search.

REMEMBER

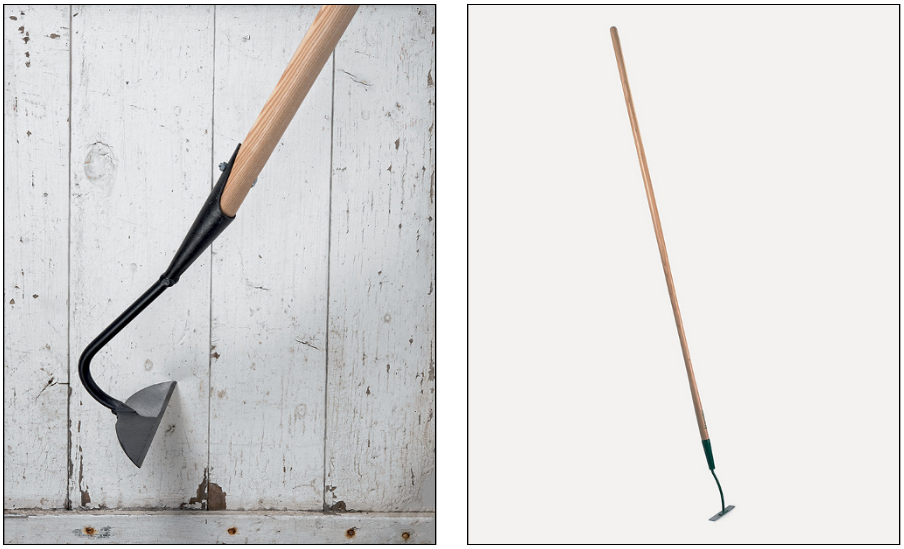
Sharpness counts! Your hoe will be sharp when you first bring it home. But you have to keep it so, or else it'll do a sloppy or damaging job. File it often to maintain its beveled edge.

TIP

Hoes do a better job on ground that has recently been watered or rained upon. That's because the weed roots they're meant to be tearing out depart damp ground much more easily and completely than those in dry soil.

WARNING

Stand up when using a hoe. Don't bend over or you'll end up with a backache.



(A) (B)

FIGURE 5-4: My two favorite hoes — half-moon (A) and colinear hoe (B).

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Weeding out the weeders

Unlike the hoe, or a layer of smothering mulch or black plastic, a weeder is a hand tool, a clever handheld weapon in the war on weeds. You can usually take out the invading marauders one at a time. As such, using a weeder is better than attacking the enemy with your bare hands. You can use the same vigor — or frothing rage, if it comes to that! — but a weeding tool makes your efforts more productive. A good weeder helps you extract the entire plant (as you know from dandelions and other weeds, leaving a bit of root behind usually means that the war isn't over yet).

TIP

Just take a look at the many options — try out something — or make an effort to match the weeder to the weed, because some tools are specialists. You need a forked end, for example, to get plants with taproots, and the "mini-hoe" action of a typical hand weeder works better on shallow-rooted and well-hidden weeds where your aim is merely to slice off the aboveground parts of the plants. Personally, I don't find weeders with rotary blades to be very useful.

Because weeders go into the difficult zones of tough soil and tenacious root systems and may contend with daunting obstructions, including rocks and other impediments, they need to be both very tough and somewhat flexible or resilient. Steel is best, of course, though not all steel is created equal. Sturdy gauge steel is fine, and stamped steel is adequate, but if you want a truly powerful and long-lasting weapon, spend your money on a higher-quality forged steel weeder.

Most weeders are meant to be used down on the ground, as close to their quarry as possible. This means you have to sit, kneel, or squat, which reduces strain on your back and allows you to bring maximum force to the job at hand. If the ground is damp or uncomfortable for you, do your weeding perched on a mat or kneeling on one of those nifty low gardening stools.

Here are the hand weeders I use most (refer to Figure 5-5):

- **Japanese weeder knife:** This stainless steel weeder is great for quickly digging holes and for prying up deep-rooted weeds.
- **Single prong weeder or cultivator:** This is surgical and removes weeds out of tight spots.
- **Combination cultivator and miniature hoe:** For both breaking up crusty soil and shallow excavating, this tool is a super choice.

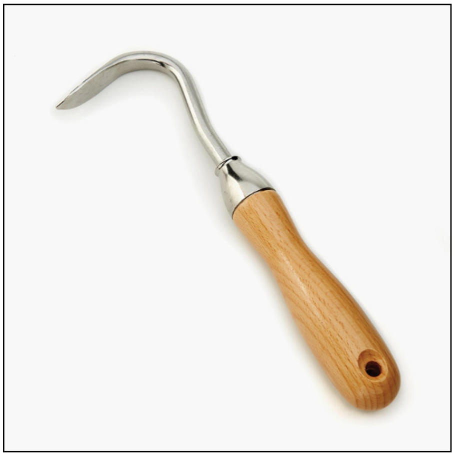

FIGURE 5-5: One of my favorite weeders — the single prong cultivator — routs out weeds in even the smallest places.

Published Courtesy of Lee Valley Tools

TIP

Take out weeds earlier rather than later, because smaller weeds are always easier to attack. Work when the ground is damp from a rain or recent watering, and you should find the job much easier.

Making the Right Cut with Cutting Tools

So many great cutting tools are available for gardeners! This area has seen remarkable innovation in recent years, making everything from harvesting flowers and fruit to major pruning jobs neater and more efficient than ever before. Treat yourself to some of the good cutting tools I discuss in the following sections — they make life (and plant, tree, and shrub maintenance) so much easier. For information on how to prune and trim ornamental trees and shrubs, see Chapters 12 and 13. For fruits check out Chapter 18.

Figure 5-6 shows the types of pruning tools I discuss in the following sections.

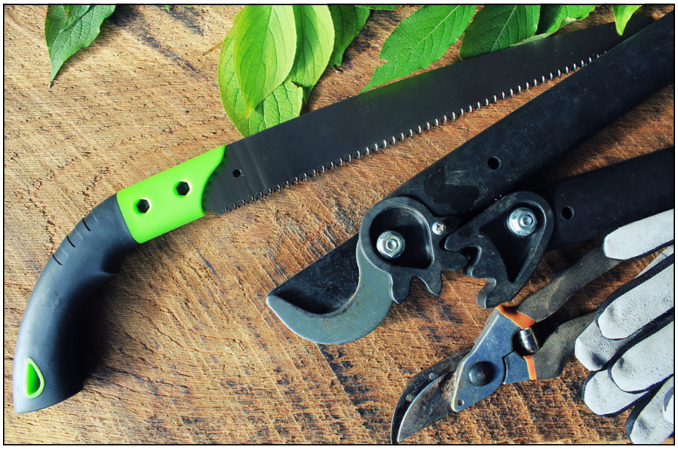

FIGURE 5-6: Common pruning tools (top to bottom) — pruning saw, lopper, and hand pruners.

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REMEMBER

Keep 'em clean and sharp. As with digging tools, or any garden tool at all for that matter, cutting tools get dirty with use. If you're good about cleaning them after each use or at least when grit, sap, or pitch builds up on their blades, they'll serve you much better and for much longer.

Getting a handle on hand pruners

Many serious gardeners value hand pruners — also referred to as *secateurs*, especially in English publications; they carry these gadgets everywhere (in a special belt holster or tucked in their back pocket) and are reluctant to lend them. Why? A good pair fits your hand comfortably and takes care of a wide range of gardening jobs, from snipping off the spent stems from last year's perennials to cutting roses for a vase to cutting away a pesky sucker to trimming a favorite shrub or ornamental tree. In a word, pruners are handy! I still use mine that I have had for more than 30 years!

In general, hand pruners are intended for use on anything ½ to ¾ of an inch (1.3 to 1.9 cm) in diameter (depending on the type) — which covers a lot of gardening cutting jobs, actually. If a branch is thicker, your pruners and your hands will strain, and the pruners won't be able to do a good job. Using a hand pruner in this instance can actually damage the plant because of the ragged cut.

The best pruner handles are designed to absorb shock but are still lightweight and strong. Usually, they're made of aluminum alloy and coated with a smooth, durable vinyl (usually red to make it easy to find in the garden). The more-expensive hand pruners come in left- and right-handed models.

As for the blades, you want tempered carbon steel. It starts off sharp and need to be resharpened by you or someone else from time to time to maintain the bevel, but it'll hold up well and last a long time. You usually use a whetstone for sharpening, though you may be able to find gadgets made for sharpening pruners that can make the job much easier. Sometimes just replacing nicked up blades is easier. Better hand pruners have replacement cutting blades you can purchase.

Here are some other considerations when you're looking for a good hand pruner:

- If you're investing in a good, professional-grade pruner, you may one day want to replace the blades rather than the entire tool, so discern now whether that'll be possible.
- A safety latch is very important so the clippers don't spring open when you don't want them to, such as when they're not in use or when they're lodged in your pocket. A good pruner should click in and out of position easily, ideally with a flick of your thumb.
- The spring that holds the pivot, keeping it tense, should operate smoothly, without catching, without hesitation. Try it out a few times to make sure. Replacement springs are also generally available with high quality pruners.
- Some clippers have a nice feature on the bottom blade, a groove that helps carry sap and pitch away from the tool. You should be in the habit of cleaning your pruners after every use anyway, but this little extra certainly helps.

REMEMBER

Though you may feel like dozens of different kinds of hand pruners line the store shelves, the tools are really all variations on two themes — bypass pruners and anvil pruners. Both types are approximately the same size but operate differently:

- **Bypass pruners:** By far the most common, these pruners make neat, even, shave-close slices, thanks to a beveled cutting blade. I usually prefer this type of pruner because it can usually make closer and cleaner cuts.
- **Anvil-style pruners:** These pruners earn their name because the cutting blade comes down on a slender, noncutting anvil blade, so a flush cut isn't possible. This tool is right for cutting very tough or dead wood. Some anvil-style pruners have a ratcheting action, which makes cutting easier.

Hedging your bets on hedge shears

The basic design of hedge shears has changed a little over the years to become even more efficient than ever before. Basically, you're looking at a tool that's from 1 to 2 feet long 30 to 60 cm from tip to handle's end (unless you get an especially long-handled model). This form allows the average-size person to slice away while standing comfortably. These cutters are meant to be used to trim hedges, whether evergreen or deciduous. They're too big and unwieldy for spot-cutting jobs or regular pruning.

The shafts are either light but tough tubular steel or heavier hardwood, usually with cushioned grips to make your work more comfortable and your grip more secure. The cutting blades are long and sharp, the cutting edge is ideally beveled, and the base (near the fulcrum) may have serrations for those occasions when you encounter especially tough branches.

TIP

You can get better results and longer use if the blades are tough, drop-forged carbon steel. Check also that the point where the cutting blades meet the handles is secure and tough.

The blades of hedge shears vary. Wavy-edged ones help keep branches in place as you work without gathering dirt or roughening the cut. Serrated-edged ones can tame unruly stems of wayward shrubs by holding them while you cut.

Assuming you can run a cord from a power source out to your hedge or other shrubs that need occasional shearing, electric hedge pruners are worth considering. They can often do a neater and faster job, which may be important to you if you have a lot of hedge to cut or are striving for a formal, tidy look.

Branching out with loppers

A lopper is a sort of in-between cutting tool. By that, I mean loppers are what you reach for when the branch is too thick for hand pruners yet too leggy to be managed with a saw. In these cases, which come up more often than you may think, there's no better tool for the job than a lopper.

A good pair of loppers has long, strong shafts of steel, fiberglass, or hardwood. At the ends, where you grip them, you want either vinyl or rubber handles, just to alleviate vibrations from cutting and make the work more comfortable. At the top, the curved hook and blade ought to be tough metal such as forged carbon steel — sharp, of course, and beveled. The point where these two elements come together needs to be strong and secure; look for strong, stout pins or rivets, as well as rubber bumpers.

Use loppers on wayward vines, on overgrown shrubs and hedges, and on small ornamental or fruit trees. You may find loppers especially handy if you have to reach into the greenery or work in tight quarters. Employ a pair of loppers when you need to cut something 2 inches (5 cm) in diameter or less. Some of the special ratcheted types can tackle somewhat larger material.

Moving up to pruning saws

The pruning saw is such a simple tool that people tend to underestimate it. The first thing you need to know about pruning saws is *accept no substitutes.* Don't use any household or carpenter's saw in its place. Those tools aren't curved — a feature of the pruning saw you can immediately appreciate when you use it. Plus the blade may be too thick, which chews up the branch instead of severing it, or the cutting teeth may not be right for the branch you want to cut. Pruning saws are extremely sharp, and most cut on the pull stroke. They have specially designed teeth that don't clog with tree sap and damp sawdust. Invest in the saw that's meant for gardening! It's never expensive, and you won't be sorry.

Use a pruning saw on branches that won't yield easily to loppers — basically, anything over 3 inches or so. You can manage thicker branches using the standard three-way cut (see Chapter 12 for details).

WARNING

If the job seems too big for your pruning saw — if you feel the slightest overmatched or in danger — hire someone else to do the job or use a chainsaw instead. (See the section, "Chewing through chores with chainsaws," later in this chapter.)

Putting Power Tools to Use

Plenty of power tools are designed to make certain gardening chores faster and easier, but go easy on purchasing many of these. For small gardens, they can be overkill, and many of these tools are noisy, which can really detract from what's supposed to be a relaxing and quiet pursuit. I rarely use them, but they do have their place.

In this section, I describe some powered garden tools that you may find useful. Many of them make the work go much faster than the hand-powered alternative. Just be sure not to buy something too big for the job — the purchase could end being too expensive and too daunting. (For information on lawn mowers, see Chapter 11.)

Safety first: Controlling your power tools

When using power tools in your yard, you have to take precautions to protect yourself from harm:

- Wear appropriate clothing (long sleeves, long pants, and steel-capped boots), eye protection, and perhaps ear protection as well.
- Always read the manual so you understand how the machine operates.
- Make sure you know how to turn it off.
- Make adjustments only when the tool is off.
- Some tools become hot as you use them — be careful to avoid burns.

WARNING

When you aren't using a tool, make sure to safely stow it securely indoors, out of the path of foot traffic, in its off position, and sheathed or covered if it has sharp parts. Here are some more safety tips:

- **For gas-powered tools:** Double-check that there are no leaks (sniff!). Store extra fuel in containers intended for that purpose; then label these containers and keep them out of the way in a cool, dry spot.
- **For electric-powered tools:** Always use a circuit breaker; check the cord often for signs of wear or damage to the insulation or connectors. If you need an extension cord to run the tool out to the project spot, get one of those bright-orange ones so the cord is readily visible to you and others.
- **For tools in general:** Service the tool annually (at season's end is best; surely by early spring). If you don't know how to or don't want to, hiring someone else to do it isn't expensive. Wipe or scrub the entire exterior clean and drain all fuel at the season's end. Sharpen dull edges and replace worn parts.

Chewing through chores with chainsaws

Chances are you don't need a big, powerful chainsaw like the ones road-clearing crews use. Plenty of good, smaller-size ones are suitable for homeowners — some are gas-powered (they have two-stroke engines), and some are electric-powered (which have the advantage of being quieter). Either way, confirm that important safety features are present, namely

- A two-handed switch
- A chain brake that triggers if the saw kicks back

Although a chainsaw can be invaluable, it can also destroy hedges that were meant to be trimmed with hedge shears and can cause major damage to you if you don't show it respect!

Working with trimmers and whackers

Weed trimmers and weed whackers can do a lot of different things around your yard and garden: They can cut grass (especially in tricky, hard-to-reach spots like under a fence and along edges and borders) and trim weeds and light brush (for info on lawn care, check out Chapter 10). They can also do much damage if they're carelessly used.

WARNING

Always wear eye protection when using these machines. They kick up dust, rocks, and other debris when they're doing their work.

These useful tools come in different sizes and varying rates of power. They also come in three forms:

- **Gas-powered:** Noisy but effective and portable; they tend to be heavier than other types, but weight can vary a great deal depending on the power of the unit
- **Corded electric:** Less powerful, but not as loud and may be just fine for your needs; your extension cord may limit where you can go
- **Battery-operated:** The quietest and least powerful (running out of juice after around 30 minutes) but very portable

The less-expensive string trimmers employ a rapidly spinning nylon string that does the cutting but wears away slightly as you work (as more string is fed out), so be sure to keep a backup supply or backup coil on hand. Fancier trimmers have a two-line system that reduces cutting time. Superior, usually gas-powered models use fixed plastic blades.

WARNING

Be careful about operating these tools near trees, because they can bite into the trunk, making a wound that not only looks bad but may contribute to the tree's decline (especially if it's a small, skinny tree). Be particularly careful with ones that have steel blades. They're great for clearing brush, but they can quickly damage or destroy desirable trees by accident.

Tilling soil with rototillers

Consider the rotary tiller, or *rototiller:* You may need one of these soil-eating machines if you're going to create a large new flowerbed, a production cut-flower garden, or a vegetable garden (or to install a new lawn) — any project too daunting to undertake by hand.

REMEMBER

If your property is large or you like to keep busy with such projects and revisions of them, you may want to consider buying a tiller. But for most situations, you're better off renting what you need (check online for equipment rentals or rental services close to you.). The only drawback to renting, or borrowing from a neighbor for that matter, is that the tool may not be well-maintained, which slows down the work or may be dangerous. Here's how tillers compare:

- **Full-size tillers:** There are two basic types:
  - **Rear tine:** The rear tine tillers are machines that are great to use for heavy duty work like breaking up sod to put in a large garden. They have substantial engines mounted on the front with the tilling tines in the rear. These beasts help the rear tines dig in, perfect for bigger jobs. Navigating and controlling them takes some strength and practice. If you're not sure you want to take on this machine, I recommend you hire someone experienced to do the job for you.
  - **Front tine:** Front tine tillers come in various sizes and are much easier to handle than the larger rear tine types. When the soil you're tilling is sod or hard ground, they do tend to bounce on the surface of the ground until you've made a few passes. These types are readily available for rent at most tool rental places.
- **Hand-held mini tillers:** These lightweight helpers come either gas-powered (two- or four-cycle engine) or electric (120-volt, much quieter); typically, they weigh 20 pounds (9 kg) or less. Choose an electric mini tiller based on how far from an outlet you'll be. These tools are suitable for smaller-scale projects and do a fine job of mixing amendments into the soil. Plus, you can control them, so you don't go where you don't want to go and don't stray into the root zones of established shrubs or perennials.

  TIP

  To get the best ground penetration, pull the machine backward rather than forward, at least until you've initially tilled the ground and it's softer. Figure 5-7 shows an image of a small tiller in use.

WARNING

Turning over the soil inevitably brings dormant weed seeds to the surface, where they're only too happy to germinate and start growing. And if you till any weeds, alive or dead, into the ground, you may release and churn up their seeds as well. Your best bet is to try to clear an area of weeds *before* you do any tilling.

WARNING

Too much rototilling isn't good for your soil and can disrupt the organisms in the soil. I usually only use a tiller at the beginning of building the garden. After that I try not to compact the soil by stepping on it unnecessarily so all I really need to use at this point forward are hand tools.

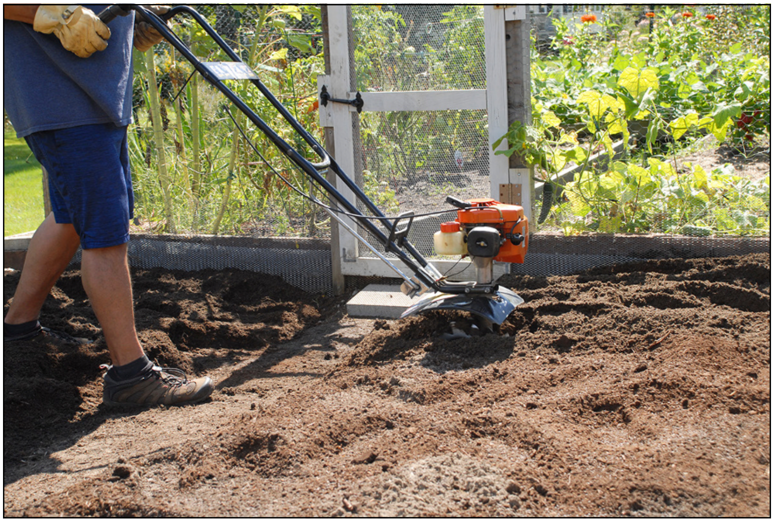

FIGURE 5-7: Smaller tillers are most suited for regular use for home gardeners.

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Rolling Out the Wheelbarrows and Carts

You may be wondering whether you actually need a wheelbarrow or cart — they're kinda big! Well, even in a small yard in garden, wheelbarrows and carts are handy mainly for hauling. In other words, they save your back and reduce the number of trips you make back and forth.

You can haul weeds, prunings, leaves, grass clippings, soil and soil amendments (including compost, mulch, or sand), rocks or gravel, firewood, or even harvested veggies on those bumper crop years. Hauling tools help out when you want to take a pile of tools, or pots or flats of plants, or both to a project area. You can even use carts and wheelbarrows to mix various amendments — like you'd mix cake batter — before dumping the load into a garden bed. Last but not least, some people get a kick out of parking one in a visible spot and displaying things (such as flowering annuals or Halloween pumpkins) above ground level, where they're more noticeable.

REMEMBER

Steel trays are tough and strong but can rust over time because exposure to moisture in a garden setting is unavoidable; therefore, consider a wheelbarrow or cart that's coated with a colorful baked epoxy finish. Wooden ones, on the other hand, absorb moisture over time and rot, so make sure that the wood of your cart has been treated with rot retardant material. No wheelbarrow or cart is forever, especially if it sees heavy use. If you don't do heavy hauling, you may consider a wheelbarrow with a heavy plastic bed because they're much lighter. Many choices of wheelbarrows are available, but here are the most important things to consider when shopping for one:

- **Capacity:** Make your choice based on the purpose you'll use it for. Five cubic feet (.1 cubic meter) is wonderful if you plan to do major hauling, but if your garden is smaller, your needs modest, or you don't mind making more trips back and forth, a smaller-size wheelbarrow or cart may be just fine.
- **High or low edges:** As with capacity, this feature depends on what you're planning to haul. If the material will be loose or spillable, higher sides are preferable. Just remember that you'll have to contend with the sides when you're putting stuff in and taking it out again.

  If possible, stand next to the cart or wheelbarrow you're considering with a shovel in your hand and try a dry run — if the motion is awkward or uncomfortable, you need a smaller cart or something with lower sides.
- **Wheel(s):** Wheelbarrows tend to have a single wheel to the front — this trait makes them eminently maneuverable even in tight spots. Carts and wagons, on the other hand, have two to four wheels — they're less maneuverable but more stable. So think where you're going to go with this thing.

  One final note on wheels: You get what you pay for. It isn't just that cheap tires may go flat one fine day. Better, thicker, treaded tires do last longer, but they also turn more easily and absorb shock when you're trundling over uneven terrain.
- **Handles:** Handles are for more than steering when you're moving through the yard, though of course you'll appreciate a comfortable, coated grip. On a well-designed wheelbarrow, the handles do the work, with the wheel acting as fulcrum, and the whole arrangement spares you heavy lifting. On a well-designed cart, handles should clear the bed enough so you can shift the entire thing around comfortably.
- **The pouring end:** To help you get the contents out of the bed (even on lazy Saturday mornings), a wheelbarrow often has a nice tapered lip at the front end. A cart may have a front "gate" that folds down or lifts out, which can be handy.

Wading through Watering Tools

Well, you *know* you need to water your garden, but what you may not know is that you have quite a range of options. If you match the watering tool to the job, your plants will do better and, just as importantly, you won't waste water. The watering tools that I describe in this section are actual tools, not whole watering systems. Most in-ground watering systems really should be installed by a professional, but drip systems and mini-sprinklers are easy to install yourself.

Hoses

The good old garden hose — it saves time and steps. You can just drag it out to the right spot, turn it on, let it go, and come back later. Coil it up when it's not in use. Keep it for years. Simple, right?

Well, not always. Cheap hoses and older ones have an annoying flaw: They kink and tangle. If you aren't watching, you can waste water and sometimes harm plants as the hose lashes around. Then you have the problem of hoses that crack, burst, and leak after being left out in the sun or run over by the car, or that just break down after what seems like not very much use. Read on for some important considerations when buying a garden hose.

Materials and construction

The best, most long-lived hose is one that's composed of layers. The inner layer needs to be flexible, a nice smooth rubber or synthetic tube. To protect it and give it toughness, it's covered or coated with at least one outer layer of nylon fabric or mesh. The outer skin beyond that, the part you touch and see, needs to be of a material that doesn't break down after prolonged exposure to sun and weather. It also needs to resist punctures and scratches. Usually, the outer layer is vinyl, or a vinyl-rubber blend, and it's often green or black. Multi-layered hoses may seem a bit fatter or heavier than the inexpensive alternatives, but as usual, you get what you pay for. It is worth it to splurge on the best hose you can buy. In the long run you will be happy you did because of its long-term superior performance

The standard, vinyl-coated, layered hose comes in different forms: namely three-ply, four-ply, and five-ply. As with anything, heavier duty versions, like the five-ply, are more expensive. Heavier duty hoses don't kink as often, can take higher water pressures, and last longer. For occasional watering jobs, the lower ply will work fine; for more frequent use and longer life, go with the higher ply.

Other types of hoses include

- **The soaker or leaky hose:** This hose "sweats" water slowly out along its entire length via tiny holes.
- **The flat hose:** Made of cotton canvas, the flat hose is lightweight and compact.
- **The patio hose:** The end of the patio hose is designed to attach to a sink faucet.

Most of these hoses will do in pinch but don't tend to last long.

REMEMBER

One more thing to look for when hose-shopping: The fittings at the ends should also be of good quality. Their job is to attach seamlessly to a faucet (or sprinkler, if at the other end) without leaking or spraying. How do you judge quality? If they're cast brass or heavy metal rather than cheap thin metal, they're built to last. A stamped, galvanized steel fitting never seems to hold up over time.

Sizes

The most common hose size is 5⁄8 of an inch in diameter (about 1.4 cm), which works well with typical municipal water pressure (30 to 50 pounds per square inch). Don't waste your time with the 1⁄2 inch size (1.3 cm) because it really reduces the amount of water delivered at the hose end especially if the hose is long and because most in this diameter are of poor quality. Larger diameter hose up to 1 inch is used commercially but is overkill for the home gardener.

Length depends on how far you have to reach the hose. For flexibility, you may want to buy your hose in 25-foot segments (7.6 meters) rather than longer lengths and just join them together as needed for different areas of the garden. Also, shorter lengths are lighter and thus easier to lug around.

Storage and placement accessories

Coils and hose caddies are nice accessories to have. A hose comes coiled and stores well coiled in its original direction and loop size — in other words, a hose has *coil memory.* Letting the hose return to this state when not in use is better for the hose's longevity.

A hose guide is a simple but worthwhile gadget. A stake anchors the guide in the ground or in pre-drilled holes in your patio or pathway, and it holds the hose in place, even along curves or around corners. In this way, the hose can't stray onto a path or across your garden plants. They can prevent accidental destruction of plants and flower spikes.

REPAIRING A HOSE

Hoses seem to undergo more abuse than just about any other type of gardening tool, and chances are that sooner or later you're going to find yourself owning a hose with some end or thread damage. When this happens, determine whether repairing the hose end is worth the trouble. If the hose wasn't cheap and the damage is minor, by all means, give it a try.

For hoses that develop leaks, patch kits are available wherever hoses are sold. Always patch only when the hose is completely dry.

Nozzles

An awful lot of hose accessories are out there. Rarely are they expensive, so you can give one a try and see how you, and your plants, like it. Here are some of the common ones; they all screw onto the end of a standard hose:

- **Watering wand:** This gadget extends your reach for watering hanging baskets or irrigating the back of a deep flowerbed. The *rose,* or head, at the end of the wand delivers the water in a gentle, drenching spray. The watering wand is also nice for watering potted plants and seedlings if you keep the water pressure low so you don't dislodge the little plants. Get a wand with a thumb-operated on-off valve so you can move from plant to plant without wetting things you don't mean to or wasting water.
- **Jet-spray nozzle:** Usually brass, this tool focuses water into a strong, stiff spray. It's ideal for hosing off muddy tools and boots or cleaning a walkway or driveway.
- **Adjustable round nozzle:** A refinement of the jet-spray nozzle, this nozzle can also deliver a softer spray right on down to a mist — all by twisting it until the water is coming out the way you want.
- **Misting head:** Though small, this tool can be a bit pricier because it usually comes in brass or brass-coated die-cast metal. It delivers water in a fine mist, nice for little emerging seedlings.
- **Pistol-grip nozzle:** Usually made of tough, UV-resistant plastic, this nozzle is a favorite among gardeners because you can vary the intensity of the spray by applying pressure to the trigger and thus use it throughout your garden.
- **Fan head:** This tool delivers a drenching sweep of water from its broad, broom-head-like end, making it a good choice for bigger watering projects like irrigating a newly planted shrub or rosebush.
- **Multiple-head nozzle:** These nozzles are showing up more frequently on the market. They have several types of nozzles built into one head and are quite handy.

Hose-end sprinklers

A hose-end sprinkler is designed to screw into a standard hose and rest on the ground wherever you drag it and set it down; it then delivers water in a spray pattern in the immediate area. Clever designers have come up with all sorts of nifty alternatives, so you should have no trouble finding a sprinkler you like and that suits the lay of your particular landscape. Here's a rundown of the common ones:

- **Fixed-spray sprinkler:** These sprinklers are the simplest types and are perfectly satisfactory for watering small areas. They deliver a fine, soft rain, rather casually (that is, without a super-reliable pattern).
- **Whirlybird sprinkler:** A spring-loaded arm breaks the shooting stream of water into droplets as it snaps back into place, which makes this sprinkler revolve. This deceptively simple design can actually accomplish a very thorough watering job in a circular shape.
- **Rain tower:** The rain tower is just an impulse sprinkler like the whirlybird, but it's elevated on an adjustable tripod contraption so it can water a broad circle. Therefore, it's terrific for watering large areas of tall plants, such as a corn patch or vegetable garden.
- **Oscillating sprinkler:** Oscillating sprinklers are marvelous for watering lawns and broad plantings. Splurge on the more expensive units; they last much longer and offer a greater range of settings that can make your watering more accurate and efficient. Compared to a whirlybird sprinkler, oscillating sprinklers tend to lose a lot of water to evaporation.
- **Tractor (traveling) sprinkler:** The tractor sprinkler is a little more high-tech, at least for a homeowner. The small water-driven tractor scoots slowly across a lawn, using the laid-out hose as a guide. Meanwhile, a simple revolving sprinkler mounted on top does the watering. Some models have three speeds, for lighter to deeper watering.

Water timers

If you have a good idea how much watering your plants need but don't want to or can't be there, the water timer's for you. Though no bigger than a coffee can, some of these gadgets contain a small computer that you can program for watering time and duration.

One end of the timer attaches to the faucet, the other to the hose end — you have no batteries, no wires to worry about. Some timers are more elaborate (and expensive) than others, so have a clear idea of your needs as well as your technological savvy when you go shopping. You can find water timers wherever gardening supplies are sold, as well as at specialty greenhouse supply companies. Water timers are most often used with professional installed sprinkler systems (which I cover in Chapter 4).

2

Flowers and Foliage: Growing for Color

IN THIS PART . . .

See why annuals are the perfect solution for adding all-summer color to your garden.

Understand why perennials are such popular plants for the garden and see which one’s best suits your garden.

Discover tips on how to buy bulbs, how to plant them, and how to use them most effectively.

Decide which roses are the best choice for you based on where you live.

Identify pests of these plants and what to do about them.

Know how to use various simple-to-follow techniques to multiply your favorite plants so you can as many of them as you want while saving money at the same time.

IN THIS CHAPTER

- Identifying annuals
- Working with bedding plans
- Selecting and purchasing annuals
- Planting and caring for annuals
- Getting rid of pests

Chapter 6

Adding Yearly Variety to Your Garden with Annuals

For sheer flower power, annuals are hard to beat. Because they have to complete their entire life cycle in one growing season — which is the technical definition of the term *annual* — these plants work fast. They go from seed or seedling to full-grown plant, bursting with flowers, in short order, delivering color when and where you need it.

This chapter can help you choose and place annuals in your garden. It also fills you in on their basic care requirements so you can get the most out of them. Gardening with annuals, more than ever, is easy and rewarding.

REMEMBER

Most annuals are only annuals in temperate climates where frost kills them at the end of the growing season. In tropical lands many of the annuals don't seem to know that they're annuals and keep growing and growing for years.

Finding Flowers that Fit Your Garden

Modern-day annuals are impressive indeed. They've been bred to produce abundant flowers and lush foliage throughout the heart of the growing season. They rush to flowering because their means of reproduction is by seed. And to get there, the flowers must come first. This great output guarantees bountiful garden color and also makes most annuals great for bouquets. By the time fall comes and seeds form (if they do, before frost), the plants are spent and die. By then, though, you should certainly have gotten your money's worth! Annuals are very gracious guests. Figure 6-1 gives you an idea of how an annual progresses through life.

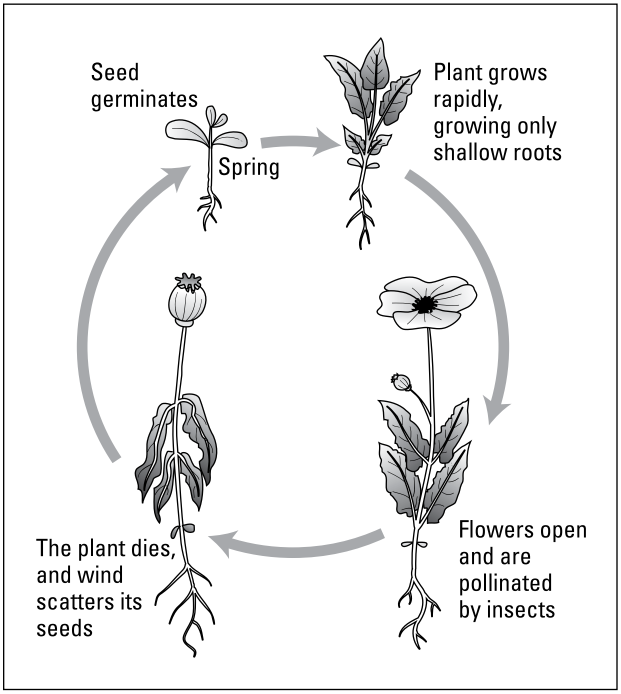
Seed germinates
Spring
Plant grows rapidly, growing only shallow roots
Flowers open and are pollinated by insects
The plant dies, and wind scatters its seeds

FIGURE 6-1: Following an annual's life cycle, from seed germination to seed production.

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Not surprisingly, a huge range of annuals is on the market, and more annuals arrive every year. Demand is market-driven, innovation pushes on, and the upshot is that you can choose from many, many different annuals — no matter where you live, no matter what growing conditions your garden offers. The variety of annuals allows you to find countless plants that are specific to warm or cool weather. They offer every color of the rainbow; old favorites in new colors, bicolors, and "double" (full-petaled) choices that really stand out. (For more info about annuals that love sun or shade, check out the section, "Deciding where to plant annuals," later in this chapter.)

Some like it hot: Warm weather annuals

Lots of annuals thrive in hot summer weather, tolerating even periods of prolonged drought in style. Many annuals have this preference because their predecessors, or ancestors if you will, originated in warm, tropical climates with long growing seasons. All plant breeders did was capitalize on or preserve these qualities while improving the plants' appearance or expanding the color range.

Some warm-weather annuals are actually perennial in some regions but are used as annuals in other areas because they're not hardy there (they don't survive the winter). For instance, snapdragon can be a perennial in the South but is used as an annual farther North. Some tropical plants are also commonly used for temporary display.

Examples of favorite warm-weather annuals include impatiens, Madagascar periwinkle, marigolds, petunias, and zinnias.

Some annuals like it cool

Some annuals have their origins in areas with colder winters and mild but not blazingly hot summers. Plant breeders have stepped in to improve these plants' flower production (the more blooms, the merrier!), add new colors, and select for compact plant *habit* (shapes or forms). The result is a huge range of good, tough plants that even gardeners with shorter growing seasons can count on. Examples of favorite cool-weather annuals include cleome (spider flower), pansy, Johnny jump-ups (a type of viola), trailing lobelia, and calendula (pot marigolds).

TIP

North or South, cool-loving annuals are often a fine choice for the parts of your garden where shade prevails. The shelter of a fence, pergola (a type of arbor — see Chapter 14), porch, or overhanging tree keeps the plants cooler, preserving their flower color, prolonging bloom time, and protecting the plants from drying out in the hot sunshine.

Southern summers are generally too hot for cool-season annuals. Enjoy them until late spring and then tear them out as they begin to flag and replace them with more durable and heat tolerant annuals, like annual vincas, lantanas, marigolds, portulacas, or zinnias.

Mixing and Matching Annuals

Fun and creative combinations, of form as well as color, are so easy with annuals! Assuming you plant them in a hospitable spot, they're so eager to grow and so certain to bloom that you can be artistic with confidence. The following sections tell you how you can design your annual bed with respect to the shape of the plant, color, and scent.

Use the sample plan in Figure 6-2 to make a simple garden. This figure shows an idea of how to set up a flowerbed of annuals. Petunias are planted in the first ring, following by zinnias or marigolds of medium height, and then marigolds or zinnias in the next ring that are a little taller. The center gives height to the garden using your choice of annual grass. For this garden to be most effective, plant only a single color of each type of plant in each ring. For more info on designing a flowerbed, see Chapter 2.

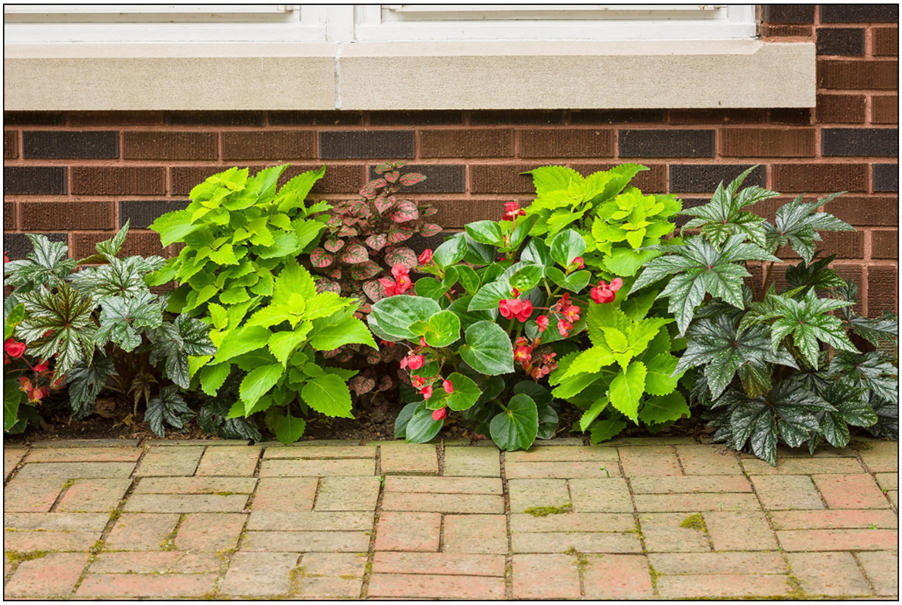

FIGURE 6-2: This simple colorful garden for annuals includes large star-shaped leafy begonias, coleus, polka dot plant, and flowering wax begonias.

Photo courtesy of Proven Winners

Good habits: Taking advantage of shape, height, and structure

Contrary to popular belief, not all annuals are little bloom-studded muffins. Hardly! Try to install annuals with a range of plant habits — variety is the spice! Check out Table 6-1 for some of your options.

TABLE 6-1 Appearance and Habits of Annuals

Type	Description	Examples
Low growers	These annuals can create a carpet in your flowerbeds, not only covering open ground or making a “skirt” at the base of taller plants but also generally spilling over and softening the edges while adding welcome interest and color.	Fan flower (scaevola), sweet alyssum, million bells, and portulaca
Spiky growers	Spires of pretty flowers, whether loose and airy or dense and commanding, are wonderful punctuation marks in a display. They break up monotony, standing out from the crowd even as they keep the eye moving.	Snapdragon, larkspur, and salvia
Petite, compact annuals	These little cuties pack a lot of appeal into a small space, making them perfect for containers (small pots as well as window boxes or big, deck-side planter boxes), edgings out in the garden proper, or in any spot that needs reliable coverage that’ll be viewed at close range.	Trailing lobelia, diascia, small pansies, and nierembergia
Mound-formers	The mainstay of many garden displays, plants with a lower-growing, rounded habit are valuable because they fill in their allotted space so well and are handsome when viewed from any angle. Closely planted, they’re excellent for edging or masses of dependable color.	California poppy, geranium, impatiens, nasturtium, and French marigold
Big annuals	Count on an impressive show and lots of color — quickly! This sort of annual is wonderful for fence-side, along a wall of the house or garage, or in your entryway garden.	Sunflower, cleome, zinnia, and flowering tobacco
Great annuals that range from small to tall	These annuals have such a range in height that no matter what your needs, you can probably find one that fits.	Zinnia and marigold
Leafy plants	Don’t forget foliage! So-called *foliage annuals* may flower, but their main attraction is their handsome, colorful leaves. Rimmed, variegated, striped, splashed, or dappled; red, maroon, white, yellow, cream, or chartreuse — you can find all sorts of variety and opportunities to make exciting, stand-out displays with these plants.	Coleus

Here are some good ideas for making annual diversity work for you in your garden displays:

- **Small in front, medium in the middle, and tall in back:** This tried-and-true guideline works because plants don’t block one another from view, and the stepping-up effect simply looks great and adds dimension to your flowerbed. It makes a display look full and is especially effective in small or tight spaces. Thus, for island beds (in the middle of your lawn, say) or containers, you want small plants on the edges, then medium plants, and finally tall ones in the center. See Figure 6-3 for an idea of how to vary heights in your flowerbed.

TODAY'S COLEUS AREN'T LIKE YOUR GRANDMOTHER'S

Today's coleus come in all types of dazzling colors, heights, leaf shapes, and patterns. Some do well in sun, usually the red and orange ones, whereas others do great in shade, usually the ones with predominantly green coloration. They give you color all summer long. Their flowers are just an afterthought that I usually cut off to encourage more leaf growth.

Also coming on the market now and competing with coleus are celosias that are specifically bred as foliage plants, in lustrous greens, ruby reds, and bicolors.

- **Repetition and balance:** Plant so that one plant habit (or form) recurs at regular intervals in the display. This touch supplies continuity and naturally looks pleasing. Vary what happens between if you wish.
- **Simplicity:** The smaller the area is, the more important it is to avoid clutter. Use several or many of one kind of plant, together. Or stick to one sort of plant habit but vary the types of plants or the colors.

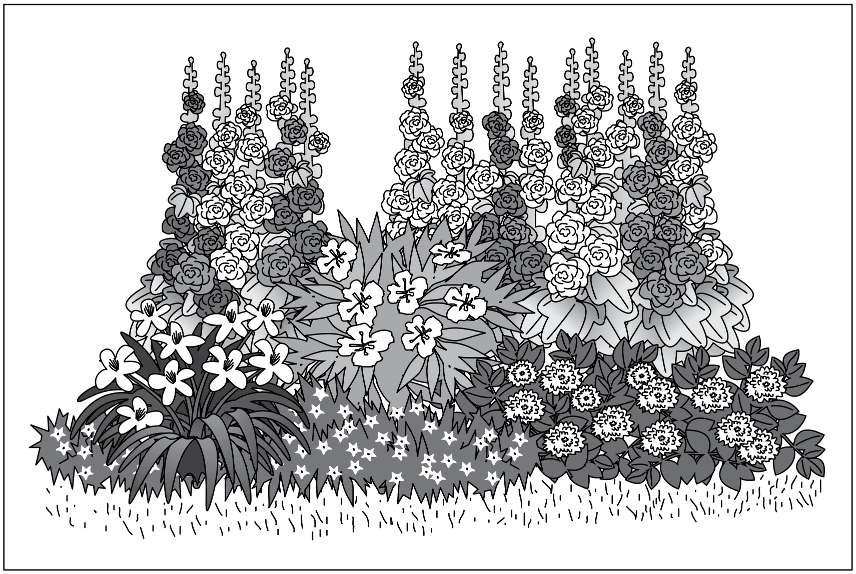

FIGURE 6-3: You can add dimension to a flowerbed by planting short annuals in the front and tall ones in the rear.

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REMEMBER

Annuals are great to add among smaller, newly planted perennials to provide fast color the first season. The following year, the perennials come into their own and fill the space once occupied by the annuals. Also, annuals give color to a garden later in the summer when most perennials are done with their show for the season.

Combining colors

As a painter or interior decorator may say, with justifiable envy, "Wow, what a palette!" Annuals come in literally every color of the rainbow, and the only limit is your imagination. If you want to be absolutely sure of a splashy display, you can use the following principles.

However, sometimes rules are made to be broken, or sometimes a combination idea happens accidentally or just occurs to you. Not only are annuals reliable, but they're also forgiving. So feel free to try anything, removing or shifting plants around as you fine-tune. Yes, you can move an annual from one place to another without much trauma (just get all or most of the root system when you do, and water the plant in well in its new home until it adjusts).

Throwing a bunch of flowers together in a flowerbed or container can look like a lively bouquet, or it can look like a hodgepodge. I follow this rule: There are no real rules. As long as you like it, it's a good combination.

Here are some useful color principles you may find helpful as you figure out your preferences:

- **Go for the bold:** Mix annuals in bright primary shades of red, yellow, and blue. Ideally, they're of the same color intensity so one doesn't steal the spotlight. Yellow zinnias with blue calibrachoa is a stunning combo.
- **Hot, hot, hot!** Compose an exciting, traffic-stopping display out of any or all of the following: hot pink, bright orange, ruby red, magenta, and bright purple. Try some bright orange marigolds combined with purple petunias.
- **Soft and sweet:** If you like romantic, soothing pastels, go for colors of similar strength or intensity; combine pale yellow, lavender, pink, baby blue, and cream rather than white. A tranquil pairing is lemon-colored osteospermum with powder blue verbenas.
- **Aim for contrast:** Colors considered opposites (complementary colors) — such as orange and blue, yellow and purple, and red and green — look terrific together. Orange nasturtiums topped with blue salvias is a good choice.

- **Use neutral hues:** These colors go with everything and thus make nice, calming filler in a display that may otherwise look busy or cluttered; try cream, beige, silver, or gray (supplied by foliage if not flowers). An occasional white-flowered annual is also welcome in color-filled layouts. Silver leafed foliage plants like the dusty millers can be nicely combined with any white-flowered plants like angelonias or petunias.

Designing annual beds for fragrance

Annuals are already dependable in terms of growth and flowering, so if you love to walk outside and take in sweet scents or pick scented bouquets, designing for fragrance is totally doable.

If you're buying seed packets, information on whether the annuals are fragrant should be in the fine print. If you're shopping for plants and they don't have flowers yet, check the tags or ask. If you'd prefer to trust your own nose, buy larger, blooming annuals (but realize that petals or buds may fall off during the journey home or shortly after transplanting. Don't worry — the plants will soon generate more!).

Blooms that open later in the day or remain open in the evening hours are often fragrant, relying on their sweet aroma to entice pollinators (usually night-flying moths). Examples of late (in the day) bloomers include flowering tobacco, four o'clocks, heliotrope, angel's trumpet, and moonflower.

My favorite fragrant annuals include flowering tobacco, stock, heliotrope, angel's trumpet, wallflower, sweet pea (especially the old-fashioned or heirloom varieties), and scented geraniums.

Here's how to make sure you, your family, and anyone who visits notices and enjoys your fragrant annuals:

- **Strategic placement:** Cluster annuals in pots and place them on or near places where people gather, such as a patio table, the sides of deck or porch steps, or even in a hanging basket.
- **Strength in numbers:** Don't plant just one plant! The more you grow, especially if they're near one another, the stronger the scent will be.
- **Ample space between different plants:** Although each plant may have a delightful fragrance on its own, variety can produce clashing odors.
- **Sufficient watering:** Flower fragrance cells reside in petals, and foliage fragrance cells are in the leaves, of course. These cells stay healthy and swollen to maximum size when you keep an aromatic plant well-watered. If guests are coming over, water well shortly before they arrive.

- **Shelter from the wind:** A little windbreak (from a fence, deck corner, or even a garden bench or vine-draped trellis) can help prevent fragrance from dissipating.
- **Focus on the evening hours:** White-flowered fragrant annuals — especially flowering tobacco and the dramatic vine moonflower — waft their most powerful scent into the night. (Their white flowers also show up better in limited light.) So situate them near the deck, patio, or dining area where you'll be enjoying dusk outdoors.

Buying Annuals

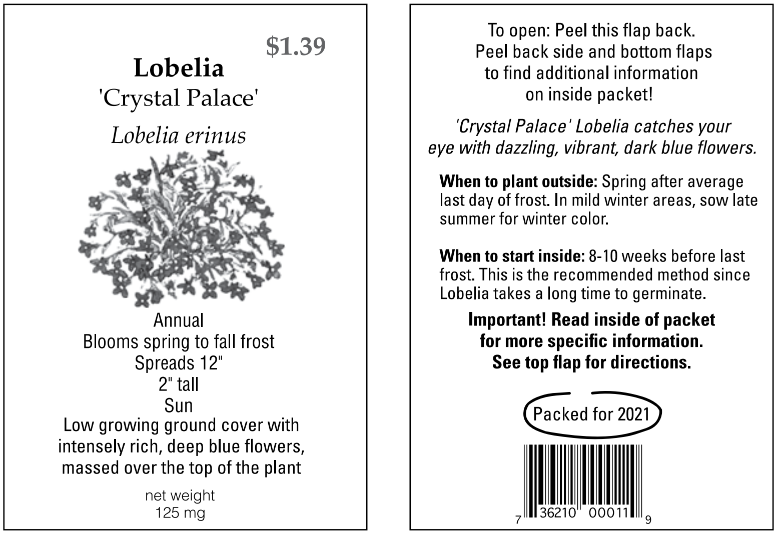
Because annuals are a one-shot deal — that is, good for only one growing season — you have to buy new ones each spring. You have two options: seed packets and nursery starts. The following sections explain the differences.

Starting with seed packets

The almighty seed is the symbol of a new beginning. Buying your annuals as seed packets gives you four important advantages:

- **You can get an earlier start.** Starting seeds indoors takes time and space, but it's not at all difficult — and it's a great way to chase away the winter blues.
- **Thanks to a broader selection in the seed-packet world, you can grow unusual annuals or new and different colors of popular ones.** Look in seed catalogs that come in late winter, or browse the company website. You have all sorts of wonderful choices!
- **Quantity!** Any given seed packet can contain 100 or more seeds. Even with some attrition, using seed packets is a great way to grow a whole lot of plants.
- **It's inexpensive.** Sure, experienced gardeners bemoan the rising cost of seeds over the years, but, really, it's still the best deal in town, always substantially cheaper than buying young plants.

Be sure to shop early for best selection, and always check the packet to make sure the seeds are fresh. (The packets should be stamped with an expiration date of later this year or next year or should say "packed for [current year]" — see Figure 6-4.) Store the packets in a cool, dry place so the seeds aren't tempted to germinate until you're ready to sow them in flats. For details on how to sow seeds and for other methods of multiplying your plants see Chapter 10.



$1.39

Lobelia
'Crystal Palace'
Lobelia erinus

Annual
Blooms spring to fall frost
Spreads 12"
2" tall
Sun
Low growing ground cover with intensely rich, deep blue flowers, massed over the top of the plant

net weight
125 mg

To open: Peel this flap back.
Peel back side and bottom flaps
to find additional information
on inside packet!

'Crystal Palace' Lobelia catches your eye with dazzling, vibrant, dark blue flowers.

When to plant outside: Spring after average last day of frost. In mild winter areas, sow late summer for winter color.

When to start inside: 8-10 weeks before last frost. This is the recommended method since Lobelia takes a long time to germinate.

Important! Read inside of packet
for more specific information.
See top flap for directions.

Packed for 2021

7 36210 00011 9

FIGURE 6-4: Packets of fresh seeds contain planting information, details about the plant, and packing dates.

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You can search various mail-order and online sources that provide a broad selection of annual seeds in case you can't find what you are after in your local home store or garden center.

Starting with annual, well, starts

You generally see plant starts at the garden center or home store in mid-to-late spring. Small annual plants are generally sold in packs of four, six, or more, with each cell holding a single young plant. These plants were raised from seed or from cuttings in a greenhouse and need a little TLC (shelter from cold and wind, regular water so they don't dry out) when you get them home.

REMEMBER

Here's what to check before buying:

- **Labels:** Labels should contain useful information, such as flower color and mature plant size, as well as the name of the plant.
- **Blooms:** A blooming plant may be more attractive, and it lets you check that the color is what you want, but the flowers take energy away from the roots. When you get the plant home, cut or pick off any flowers or buds.
- **Well-rooted plants:** Pop or wiggle a plant out and check the rooting. If the seedling promptly falls out of the soil mix, it hasn't been in the cell or pot long enough. If you see a mass of white roots, the plant has been in the cell too long and is stressed.

- **Healthy appearance:** Is the foliage crisp and green? Just a few yellowing and bedraggled leaves aren't necessarily a problem — you can pinch those off. But you should look in the crown and the *nodes* (where the leaves or leaf stalks meet the main stem) for insect pests or signs of them.

TIP

Understandably some folks don't like labels stuck next to their plants because they can detract from the esthetics of the planting. Try this idea: Plant the label underground next to the plant, say at the nine o'clock position. Then you won't see the label, but you'll be able to retrieve it when your neighbor asks the name of the variety that planted. Also, because the label is underground, it won't brittle and break from sun exposure.

An Annual Event: The Whens, Wheres, and Hows of Planting

Well, of course, in Northern gardens, annuals bloom in the summer months — and often, they start in spring and don't quit until fall. Lucky gardeners in milder areas with longer growing seasons can enjoy some annuals, especially those that are frost tolerant, year round. Your growing conditions and climate dictate how soon the show gets started, how long it lasts, and where and how you should plant your annuals.

Filling in the garden after the last frost

If you live in an area with a long growing season, you can go ahead and sow annual seeds straight into the ground, secure in the knowledge that they'll sprout, grow up, and start pumping out flowers, all in plenty of time. This approach is generally easy and cheap. Gardeners with shorter summers can either start seeds inside or buy seedlings.

Freezing weather kills or at least severely damages most annuals. Therefore, the trick is to know your last spring frost date and your first fall frost date — these dates bookend the annual-gardening year. (If you don't know, ask an employee at a local garden center, a more experienced gardener, or someone at the nearest office of the Cooperative Extension service. Note that the dates are averages; they can vary somewhat from one year to the next.) You can check out Chapter 3 for more information on plant zones and growing seasons.

Planting in late spring

The majority of annuals are frost-sensitive. In other words, a freeze can damage or kill them. Frigid temperatures also make annuals much more susceptible to disease damage. If these small plants are damaged by cold, they may never quite recover. Don't risk it: Plant your new annuals in the ground only after all danger of frost is past. The same goes for plants you're putting in containers (though you can bring the pots indoors on chilly nights if you have to — see Chapter 19 for info on container gardening).

REMEMBER

Gardening fever hits us all on the first warm spring day. But warm *air* isn't necessarily what you're waiting for — warm *soil* is. If the ground is still semi-frozen or soggy from thawing cycles or drenching spring rains, it's better to wait another week or two. No, you don't have to take the soil's temperature before proceeding. Get a soil thermometer and stick it a few inches into your garden soil; wait until the temperature warms up to about 60°F (15°C) before you plant.

Planting annuals later in the season

Of course you can plant later in the season. Plant and replant all summer long if you want and into fall if you garden in a mild climate. As long as the plants are willing and able to grow and produce flowers, why not?

Because blazing hot weather is stressful, avoid planting during such spells or at least coddle the newcomers with plentiful water and some sheltering shade until they get established. A dose of all-purpose fertilizer (applied according to the instructions and rates on the container) may also hasten latecomers along.

Deciding where to plant annuals

By and large, annuals are resilient plants that tolerate a wide range of growing conditions. But some have preferences for more or less sun, and these specialists allow you to dress up such areas for maximum impact.

Planting in the sun

Full-on, warm sunshine inspires many annuals to grow robustly and generate loads of flowers. You can always tell if a sun-loving annual isn't getting enough light, because its stems become leggy and lean toward the light source, and flower production is disappointing. So let them have it! How much is enough? Six to eight hours a day suits most. My favorite annuals for sun include cornflower, cosmos, marigolds, nasturtiums, New Guinea impatiens, petunias, portulaca, and zinnias.

Planting in the shade

Banish gloom in your yard's dim and tree-shaded areas with shade-loving annuals. Plenty do just fine in shade. Indeed, their flowers last longer without the stress of the sun beating down on them. White and yellow flowers really add sparkle, individually or massed. My favorite annuals for shade include tuberous and fibrous begonias, coleus, impatiens, and torenia.

TIP

If your shade areas have poor soil or are laced with tree and shrub roots, don't despair. Instead, just display the plants in pots, setting them here and there or in clusters. Or dig holes in the ground and stick the plants — pots and all — in the hole. Doing so makes changing them out easy, too. (A clever idea: Hook hanging baskets over tree branches and fill them with shade-tolerant annuals.)

Getting annuals in the ground

Annuals are simple to plant. Just follow the label directions for spacing, and dig a hole deeper and wider than the root ball. Add some compost to the hole or mix the native soil with organic matter (see Chapter 4 for details). If desired, you can add a small amount dry fertilizer in the planting hole and water it in, or you can fertilize the annual after planting (check out the upcoming "Fertilizing" section).

Annuals are most frequently sold in *market packs,* in which four or six or so plants are each in separate cells. Merely turn the pack upside down and gently push each plant out of its cell from the bottom. Don't pull them out from the top because the stem may break off from the roots. After removing the plants from the packet, plant them in the ground so that their rooting mass is slightly below the soil surface. Firm the soil around the plants and then water them in well.

TIP

If the roots are dense, I recommend you score the rootball or square cell vertically with a sharp knife to encourage the roots to branch out when they're planted. Sometimes you may not have to cut or score them; sometimes you can just massage them to loosen them up a bit.

Feeding the Flower Power: Taking Care of Annuals

Although annuals are usually so full of gusto and not much slows them down as they hurtle from spring planting into the summer months, don't assume they're no-care plants. Low care, yes, but not to be neglected. Attend to their basic needs, and they'll do you proud. Pamper them a little, and your garden can be a showpiece. The following sections focus on specific areas to focus your attention.

Watering

Sufficient water is always important for growing plants, but even more so for productive annuals; consider it fuel for the ongoing show. Moisture hydrates the roots, plumps up the leaves, makes buds swell and open, and sustains the flowers. Don't allow your annuals to wilt before being revived or they'll be stressed out and unable to perform their best. Regular watering is ideal. Keep the following in mind when setting up a watering schedule for your annuals:

- **Spring watering:** If your area gets normal, drenching spring rainfall, your newly transplanted-into-the-garden annuals may not need supplemental water from you. But remember how important early watering is — it encourages the roots to gain a foothold in their new home before the plant can properly turn its attention to growth and flowering. Always water on day one and keep an eye on things in the ensuing days and weeks.
- **Summer watering:** Established annuals tend to be pretty tough and often forgive your watering lapses. But they'll certainly be healthier and look much better if you give them water at regular intervals and nurture them through periods of drought.
- **Fall watering:** In some areas, rainfall may take care of your annuals at this time of year. But if not, continue to water as needed so your annuals look terrific right up to the finish line (the first frost).

REMEMBER

Your best watering methods depend on how many annuals you have and how close together they are. Options range from a gentle spray from a watering can to soaker hoses to a drip system to a sprinkler. Watering in the morning hours is best so the water can soak in and hydrate the annuals through the hot midday and so the foliage can dry off before the evening to reduce disease problems.

Fertilizing

Strictly speaking, fertilizing annuals may not be necessary if your garden has decent soil with ample organic matter mixed in, but for best performance, it's highly recommended. Remember, annuals are high-energy plants that respond impressively if you fertilize them regularly. See Chapter 4 for more information on fertilizing.

REMEMBER

The effects of adding plant fertilizer can be dramatic but not instant. Keep an eye on your annuals for a week or two or even three before concluding that you've given them enough.

By and large, annuals lap up nutrients eagerly and use this extra nutrition to produce more and healthier growth and to bloom like gangbusters. So you'll be amply rewarded for your efforts!

Mulching

A layer of mulch 1 or 2 inches deep around the base of your annuals is a great idea. Mulch keeps encroaching weeds at bay and conserves soil moisture. Plus it looks nice! Favorite mulching materials include shredded bark, straw, pine needles, grass clippings, and pine fines. Keep the mulch at least an inch away from the stem of the plant to keep insects and disease from getting into the plant. For more info on types of mulch, flip to Chapter 4.

Grooming

Like any other garden plant, an annual looks better if you stop by every now and then and give it some personal attention — some grooming. Annuals soon replace pinched-off bedraggled leaves with new ones. Grooming keeps the plants stocky.

Plant diseases and insects are harbored in wilted, browned, spotted, or yellowed leaves (indeed, pests and disease may have caused the damage). So always get rid of those unhealthy leaves when you see them, and don't forget to scoop up any that have fallen at the base of your plants. Such tidiness can arrest a problem or even clear it up.

REMEMBER

You can get more flowers through *deadheading,* or removing spent blossoms. Annuals aim to go to seed, and when you cut flowers for bouquets or remove spent blossoms, you're thwarting this natural process. The plant responds by generating more buds and flowers. If you're diligent, the plant may never get a chance to go to seed. Some annuals are more or less *self-cleaning,* like million bells, which means they tend to drop their spent flowers without you having to actually remove them.

Dealing with annual pests

Annuals that were healthy when you brought them home and that you planted in an appropriate spot with adequate moisture rarely develop any problems. Annuals are pretty tough by nature. That said, sometimes one or many hungry bugs show up to dine on your display. This section gives you the basics on the most common culprits, along with some advice on how to battle them. Of course, if things get bad enough, you can just yank out the plants and buy new ones — though just to be safe, put the replacements in a different spot.

Aphids

Aphids come in all colors and are often prevalent, so people tend to worry about them too much. Look for them on newly formed buds and any new succulent growth. You can easily rub these plant-sucking insects out, literally, by squishing them with your fingers. Or hose them off with a strong spray of water. Insecticidal soaps are also safe and effective controls.

Cutworms

Cutworms are actually moth larvae. These little fellows rest in your garden soil by day and emerge at night to dine on your annuals, especially newly planted, juicy ones. A clever and safe control is to press a collar of cardboard (a six-ounce tuna fish or cat food can works well as a template) around the plants. The collar should go 1 to 2 inches into the ground and 2 or 3 inches above ground level; the natural growth of your annuals may soon hide this barrier from view.

Japanese beetles

If you live east of the Mississippi, you've probably seen Japanese beetles — they're approximately fingernail-size and copper-colored, with green heads and legs. They eat all plant parts, though chewed-up leaves are their hallmark. Hand-pick Japanese beetles (a great money-making project for your kids!) and drown them in a bucket of soapy water.

Slugs and snails

Ravenous and disgusting creatures, slugs and snails can decimate your annual flowerbeds and even get into container displays. If you don't catch these pests in the act, you'll certainly spot their giveaway slime trails. These critters are mainly active at night and especially relish damp conditions.

Watering early in the day and spacing plants so they aren't crowded may help, but sterner measures are necessary if you have many snails and slugs and they persist. You can set traps that you buy down at the garden center or set out pie trays of cheap beer. Alternatively, protect your plants with barriers of copper strips or sharp diatomaceous earth (fossilized algae — again, available where gardening supplies are sold) — slugs and snails won't cross these. Some gardeners have found that putting a piece of old lettuce in the garden at night attracts the slugs, and then the gardener can pick up the lettuce with the slugs on it the next morning. A relatively harmless pelletized form of iron phosphate sold as Sluggo is a safe and effective control. It isn't poisonous to birds or other creatures, including humans.

WARNING

Don't pour salt on slugs; salt can damage your plants. Also, some slug and snail products, like metaldehyde, can be poisonous to pets. Opt for the safer controls first.

Spider mites

You may not spot the actual culprits — spider mites are really tiny reddish, brownish or yellow spider-like pests — but you will see their webs on the leaves of your annuals. These pests are particularly prevalent when the weather is hot and the soil is dry. Combat them by picking off and destroying affected foliage; rinsing or spraying surviving leaves; or spraying with insecticidal soap.

IN THIS CHAPTER

- **Examining perennials**
- **Designing a perennial garden**
- **Getting perennials of your own**
- **Putting plants in the ground for the long haul**
- **Keeping perennials happy**

Chapter 7

Growing Perennials: Plants That Make a Comeback

Perennials are flowering plants that are meant to last — several years, at least, and sometimes much longer. So ideally, they're a wise and practical one-time investment, unlike the annuals you have to buy and replant every year; therein lies their great appeal and value.

After you go to the effort of acquainting yourself with handsome perennials and bringing them home, you sure don't want them to totally miss the boat and turn out to be expensive annuals!

Don't worry. Get your perennials off on the right foot and give them the care they need to thrive (it's perfectly easy), and you won't be disappointed; you'll be thrilled. This chapter can arm you with the basics so you can be a successful and happy perennial gardener!

Looking at the Repeat Performers

Perennial plants are a wonderfully varied group, quite possibly the most varied group a gardener can work with. No matter where you live and what your growing conditions are (climate, soil type, sun, or shade), you have plenty of plants to choose from. So which perennials should you include in your garden? Start off by knowing which general group can work best for you: hardy perennials or tender perennials.

The broadest definition of a *perennial plant* simply states that it's an *herbaceous,* or non-woody, plant — as opposed to, say, a shrub or tree (see Chapter 12 and 13) — that last a couple years or more. Perennials, like lilies and daffodils, can be bulbs. (Chapter 8 contains info on bulbs.) Herbaceous perennials are plants whose (established) roots survive the winter, even as their top growth dies back with the approach of winter; they'll generate fresh new growth when spring returns.

Hardy perennials

The broad group of hardy perennials is justly popular in colder climates (they're generally appropriate for gardens in USDA Zones 3–8 — see Chapter 3 for details on hardiness zones). These plants emerge each spring, producing foliage and flowers. Come fall, their top growth dies down and the show is over for the year. In warmer climates some of the foliage may persist through the winter But the roots live on underground, waiting to revive and do it all again when warm weather returns.

Popular examples of hardy perennials include aster, columbine, coneflower, daylily, delphinium, mums, penstemon, peony, phlox, and Shasta daisy.

Tender perennials

Contrary to popular belief, the upper parts of the Northern Hemisphere don't have the corner on perennials. Lots of plants from milder climes (say, USDA Zones 8, 9, 10, and warmer, right on into the tropics) meet the perennial description. These repeat performers burst forth in warm spring weather, enjoy the summer months, and slow down or die down in the fall, roots still very much alive. They return in glory when the year cycles around to springtime.

Obviously, you can grow tender perennials with impunity if you're in a mild-climate area. However, everyone else can enjoy them, too: You just have to get the tender treasures through winter, because these plants can't tolerate or survive cold temperatures. (See the section, "Preparing perennials for winter," later in this chapter, for details.) Or certainly, you can leave your tender perennials in the garden to perish over the winter — which makes them, essentially, annuals and means you may ending up buying new ones next spring.

Popular examples of tender perennials include angelonia, caladium, coleus, gerbera, impatiens, pentas, and some salvias.

Planning Long-Term Strategies for Your Perennial Garden

So many great perennials, so much variety is available that one of the great joys — and challenges — of growing them is combining different kinds of perennials in plantings. But because different perennials bloom at different times, and because of the relatively slow growth of perennials (compared to annuals), perennial gardening usually involves some advance planning so you can get the most bang for your buck and get the exciting look you want, when you want it.

REMEMBER

Don’t be intimidated. If you’re displeased with a result, you’re still in better shape than a painter. Instead of throwing out the canvas, you can simply pull out or move a plant and even replace it with something else until the result looks great. While you’re waiting for perennials to take hold, you can fill in the bare spots with some annuals (see Chapter 6) or bulbs (refer to Chapter 8).

That said, perennial gardening doesn’t have to be a hit-or-miss operation. You can gather information from others, using their knowledge and ideas. Copy or approximate what you like, or borrow a good idea as a jumping-off point. Inspiration is all around you — in books, gardening magazines, and other gardens, both public and private. Above all, have fun! Perennial gardening is a very enjoyable hobby, with a broad and forgiving learning curve.

Timing perennial blooming

Although some perennials bloom all summer long, just like your favorite annuals, others don’t. They have a period of glory that peaks for a week or several weeks, and then the show subsides.

Gardeners have lots of ways to find out in advance when a perennial will bloom and for approximately how long. Look it up in a gardening reference book. Do research online. Check a print or online gardening catalog (bearing in mind, however, that some merchants may exaggerate!). Look on the tag or label. Ask a garden-center staffer or someone who's a member of a gardening club. Best of all, ask someone in your area who's growing your choice perennial, because performance varies by climate and even soil conditions.

REMEMBER

Nature being as flexible and fickle as it can be, your show may run longer or shorter than you originally planned, or you may end up with some overlap. However, coordinating plants to share the stage at *approximately* the same time works. You can fine-tune later, after basking in your early successes.

Perennials fall into several different categories of bloomers. See Table 7-1 for a rundown of perennials in terms of when they bloom.

TABLE 7-1 When Perennials Bloom

Blooming Time	Description	Examples
Spring bloomers	These babies are quick studies. They tend to emerge with the bulbs, generating colorful flowers early in the growing season. Afterwards, the foliage may remain for a while or die down completely until next year.	Basket-of-gold, bleeding heart, columbine, epimedium, forget-me-not, hellebore, lady's mantle, primroses, pulmonaria, Solomon's seal, and violas
Early summer bloomers	Plant these plants to bridge the gap that sometimes occurs between the first splash of spring and the full-on summer flowers. Plant some other perennial next to the poppy because its foliage dies down after it flowers. Russian sage is a good choice.	Iris, peonies, and poppies
Midsummer bloomers	The glory of high summer! Midsummer bloomers begin growing with warm weather and finally show off their flowers when summer is in full swing.	Black-eyed Susan, crocosmia, daylilies, Shasta daisy, and hardy geranium
Late summer–fall bloomers	These flowers are a welcome sight just when the weather seems too hot and the garden looks tuckered out.	Astilbe, boltonia, and Japanese anemone
Fall bloomers	The gardening year's last hurrah can be quite colorful, and if you have bright fall tree foliage, the combined effect can be really fabulous.	Aster, dahlia, goldenrod, mum, and sedum
All-summer perennials	If all the planning you want to do is for a show of long-term color, try planting all-summer perennials. Mix and match various colors and forms as you like. Note that these plants tend to be sun-lovers, so prepare a spot in an open area of good soil, and take good care of them so they can do their best for you.	Bellflower, blanket flower, coneflower, coreopsis, daylily, evening primrose, gaura, hollyhock mallow, Jupiter's beard, veronica, and yarrow

The living palette: Keeping colors in mind

As with annuals, color is one of the best parts of perennial gardening — the fun, creative, and satisfying part! Realize that for any given plant that you like, it probably comes in different flower colors (and sometimes, as with the numerous hostas and heucheras, in different leaf colors), which gives you even more options. There are few absolute color rules today, but see Chapter 6 for ideas on the types of color combinations you want to try.

Designing perennial beds and borders

The most common way to display perennials is together, in a large flowerbed or, space permitting, a long border of either meandering form or with firm boundaries. Quite honestly, these methods of growing perennials are purely practical: You can prepare the soil, plant them together, and care for them together (see the upcoming sections, "Planting Perennials" and "Taking Care of Your Perennials").

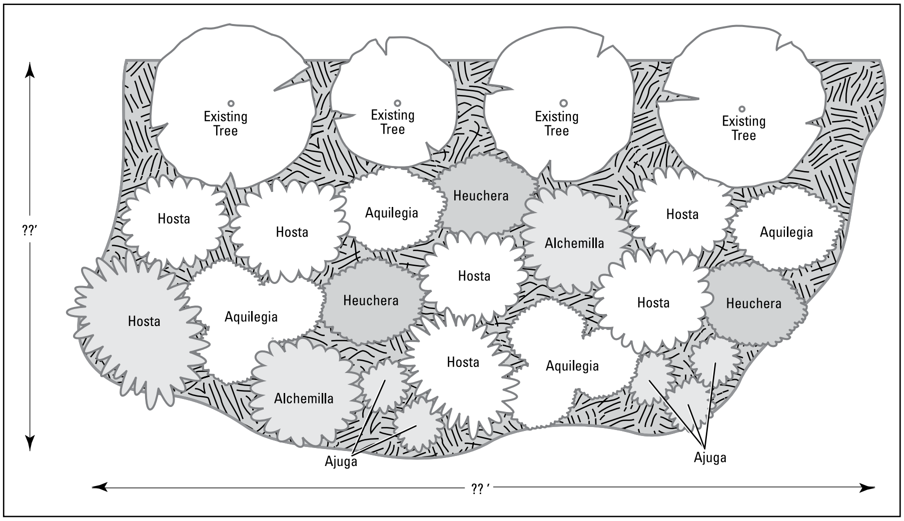
Here are some basic layout tips and techniques that the professional garden designers use, easily transferred to your own garden (for additional planning advice, flip to Chapter 2):

- **Plan to be in scale.** Some sense of proportion between your home, garage, and/or shed (whatever's nearest to the proposed perennial garden) is key. A big house, for instance, does best with wider beds and taller plants; a smaller one is better served by a series of smaller beds and lower-growing plants.
- **Match garden style with structures.** A casual bungalow, cottage, or one-level home likes an informal perennial garden, with wavy-edged boundaries; a larger or more imposing home, or one with strong architectural elements and lines, needs a more formal, straighter-edged approach.
- **Try a dress rehearsal:** Lay out the lines of your proposed garden in advance with a hose, outdoor electrical cord, rope, or even chalk or flour. Set potted plants or lawn chairs or whatever here and there within its bounds as stand-ins (these items should match the perennials in terms of mature height and bulk, not the size of the plants you buy); stand back and assess. Tinker with the plan until you're satisfied, and then sketch it on paper so you can remember it on planting day.

REMEMBER

After you have your layout planned, you're ready to begin your plant selection. In addition to choosing plants for the bloom times and colors, take these points into consideration when choosing your plants:

- **Consider height and width.** Perennial gardeners have to be patient and be able to imagine the future because new plants are small. Find out your chosen plants' expected mature sizes and allow them enough elbow room in your plan. Plan to position taller-growing plants to the back of a traditional border or the center of an island bed; array lower growers at their feet. If you need help visualizing, some software programs let you see what your garden will look like as plants mature.
- **Mix it up.** Nature loves diversity, and the variety looks great — it keeps the eye moving even as it lets individual plants stand out. So intersperse a variety of plant forms, from spiky ones to mound-formers.
- **Match the plant to the growing conditions.** Save yourself a lot of grief and wasted money and effort by choosing plants that are clearly labeled as sun-lovers or shade-lovers, as the case may be in your intended site. Figure 7-1 gives you an example of a shade garden, labeled with appropriate plants.



Existing Tree
Existing Tree
Existing Tree
Existing Tree
??'
Hosta
Hosta
Aquilegia
Heuchera
Alchemilla
Hosta
Aquilegia
Hosta
Aquilegia
Heuchera
Hosta
Hosta
Heuchera
Hosta
Aquilegia
Alchemilla
Ajuga
Ajuga
??'

FIGURE 7-1: A garden plan for a shade-filled area, such as one beneath a group of trees.

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Refer to the following for the labels in Figure 7-2, which shows a sun garden plan:

- **A:** Four lavender cotton
- **B:** Four English lavender
- **C:** One yarrow
- **D:** Six garden phlox
- **E:** Three Russian sage
- **F:** Three purple coneflower
- **G:** Five firecracker penstemon
- **H:** Five pineleaf penstemon
- **I:** Five catnip

As for soil conditions, some perennials like the soil rich and moist; others like it dry and only moderately fertile. Do your homework here, too. (Of course, you can improve or alter the existing conditions if you like. See Chapter 4 for advice.) If you have a dry garden, you may want to consider the plan in Figure 7-3. Or if you have very rocky soil, you can take advantage of the situation by creating a perennial rock garden.

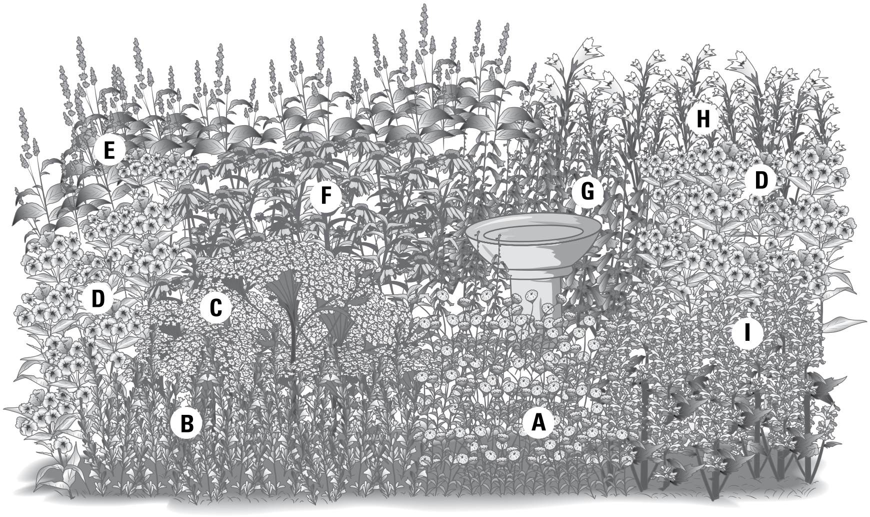

FIGURE 7-2 An easy-to-grow perennial garden for a sunny spot.

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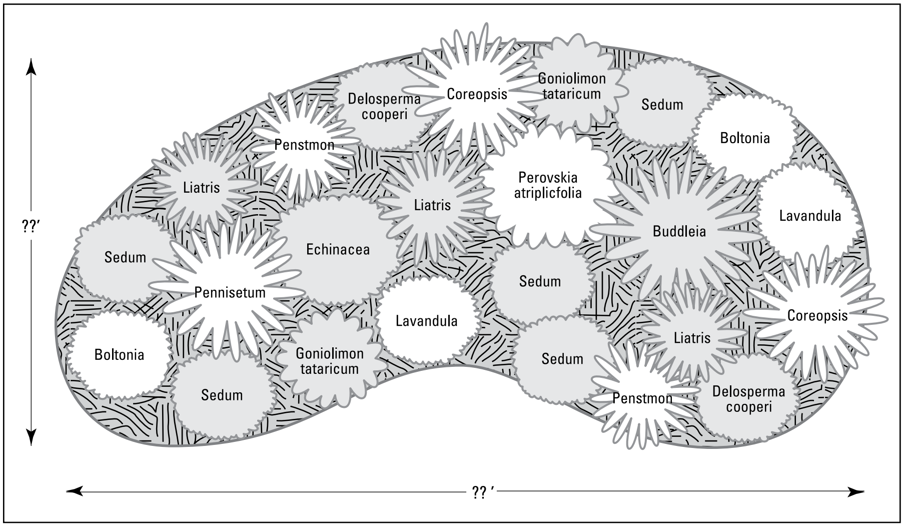
Delosperma cooperi
Coreopsis
Goniolimon tataricum
Sedum
Boltonia
Penstmon
Liatris
Perovskia atriplicfolia
Liatris
Lavandula
Buddleia
Echinacea
Sedum
Sedum
Pennisetum
Sedum
Coreopsis
Lavandula
Liatris
Boltonia
Goniolimon tataricum
Sedum
Sedum
Penstmon
Delosperma cooperi
??′
?? ′

FIGURE 7-3: Dry gardens can still be beautiful with the right plants, like the drought-tolerant perennial beauties included in this plan.

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Finding and Buying Perennials

If you have a clear idea of which plants you want, you're ready to go get them. You can acquire a perennial plant in many different ways, but I cover the most common methods in this section. Very few gardeners grow perennials from seed — it takes too long, and most gardeners want only a few plants of each variety. Besides, the best varieties today are clones, and you can't grow them from seed.

Getting perennials in containers

You can usually purchase partially grown perennial in pots, and they come in a variety of pot sizes, from a mere 2 inches (5 cm) on up to 5 gallons (7.5 liters). Both mail-order nurseries and local retailers sell perennials in containers (see the next section for info on mail-order perennials). The larger the plant is, the more mature — and expensive — it is, and the more immediate your gratification; however, a smaller plant can catch up quickly if you plant it in an appropriate site and give it good care. Consider also how big of a hole you're willing to dig.

Here are some important ideas to remember so you can be sure of getting a good potted plant:

- **Buy a healthy plant.** Examine the entire plant:
  - Look above and below the leaves as well as along the stems for signs of insect or disease damage. A few yellowing leaves are fine.

  - Examine the crown for signs of rot (no good, obviously) and fresh new shoots (very good).
  - Pop the plant out of its pot and examine the roots. They should be crisp and viable, often white or brown, not wiry, wry, limp, or black. Avoid pot-bound plants or ones that are wobbly in the pot, which indicates a poor root system.
- **Choose a plant that's just coming into flower.** That way you can verify that the plant's flower is what you expected it to be and it has several weeks of color ahead instead of buying one in full bloom that will soon be done flowering for the season.
- **Beware of bargain plants.** Bargain perennials aren't always a bargain. Many times a plant in bad condition won't make it after you plant it. It's much better to start off with the healthiest plant you can find. The transplanting process is always stressful to the plant so it needs the best chance to get established in your garden.
- **Have a few alternatives in mind.** You may have your heart set on a yellow bloomer, but be flexible as to which one; also, if mature size is your main criteria, you can find different plants in that range. There are so many different perennials available, so something new!

Buying perennials by mail

Buying through mail-order can be very convenient. You can shop from a catalog or on a website in the dead of winter or in the middle of the night in your jammies. Also, you can spend plenty of time thinking over your plans. After all, mail-order companies often carry a broader range of varieties than local providers do. And after you order your plants, you get them delivered to your door at the right time to be planted — all without standing in line!

Just make sure you pick out a company that's been in business for a while, that's able to answer your phone or email questions, and with which your gardening friends have had good experiences. You can read reviews and comments on Dave's Garden (`https://davesgarden.com`).

The following sections outline how the plants may look after their trip. Or you can check out the section, "Preparing for the actual planting," later in this chapter for info on how to treat the plants after they arrive.

Potted plants, ready for action

Some mail-order nurseries ship small perennials in small pots. If you get a live-plant shipment, open it immediately upon arrival, even if you're not going to plant anything that very day. Inspect the plants as I describe in the preceding section, and quarantine any plants of questionable quality. Call the nursery immediately if you see a problem so you can work out a refund, merchandise credit, or replacement. Take photos with your phone, so you can email them to the supplier if needed.

REMEMBER

Small potted plants aren't necessarily baby perennials. Such young plants take too long to grow, and mail-order nurseries want you to jump right in and enjoy your garden. So the small plants nurseries ship out tend to be 2-year-old, field-grown plants that have simply had a "haircut" of the top growth prior to shipping. A good, strong root system is just what you want. Don't worry: Fresh, new top growth will soon follow!

Their roots are showing: Dormant, bareroot perennials

Bareroot perennials are sometimes sold through the mail. Selling perennials this way is simply more practical for some plants for a variety of reasons. For instance, baby's breath and baptisia have root systems that are sensitive to being moved in and out of the ground and various pots too many times. Other perennials, like daylilies and peonies, have large roots systems that don't fit well in smaller pots. These bareroot plants are also dormant and lightweight, which makes shipping cheaper and less risky. Also, sending plants in larger plants filled with soil significantly increases the postage costs, because these costs are passed on to you.

Like potted mail-order plants, bareroot ones are usually 2-year-old, field-harvested plants. They were probably dug up the previous fall, just as they became dormant, and kept in climate-controlled cold storage until spring-shipping season. Bareroot plants consist of a hearty root system and some trimmed-down stems; little or no leaf growth should be evident.

TIP

When you receive the plants, carefully read the planting instructions that usually come with the plants. It's generally recommended that you can refrigerate (not freeze them) them to keep them dormant for a while longer until you're ready to plant. Get them in the ground as soon as possible so they don't dry out and can start growth right away in their new garden home.

Acquiring free divisions from others

If you're a practical or frugal person, you may gladly accept gift plants from friends and neighbors. Usually, free divisions are surplus plants, which means that these plants have been growing a little too well in their garden of origin. This is good news for you — it means the plants are in robust good health, and it also means that sort of plant probably really thrives in your area. See the section "Dividing perennials," later in this chapter for information on how to separate your plants, and check out the section, "Preparing for the actual planting," later for how to treat your divisions after you receive them.

Planting Perennials

Perennials are probably the most popular plants these days among garden enthusiasts and plant suppliers. As a result, information about how to select and plant them abounds. Reputable garden centers have knowledgeable salespeople, and universities, public gardens and arboreta, garden centers, sponsor various workshops and lecture programs about them. If you need more information than you find in the sections ahead. Public libraries, local bookstores, and online are also super places to get gardening information.

Figuring out where to plant perennials

You can find a perennial for almost any growing situation your garden can dish up. Make a match between the conditions you have to offer and the known characteristics of a plant, and you're halfway there. A little care from you on planting day and beyond, and your perennials are sure to thrive.

Sunny locations

Lots of perennials adore sunshine. They grow more compactly when they get enough sun (as opposed to becoming lanky or leaning towards the light source), and they produce more and better flowers.

REMEMBER

Full sun means six or more hours per day. This situation varies somewhat on your climate. If you live in the deep South, a plant that grows best in full sun in a Northern climate may perform better in a spot protected from hot, late afternoon sun.

Because sun can be drying, either choose dryland natives or help out the plants with regular watering and a moisture-conserving mulch around their root systems. Favorite sun perennials include artemisia, armeria, basket-of-gold, blanket flower, coneflower, coreopsis, delphinium, gaura, lavender, penstemon, peony, rudbeckia, sea holly, and yarrow.

Shady spots

Judging from many gardening books and magazines, a beautiful garden is full of sunshine and flowers, and those gardeners with shade are doomed to a dull and boring display. Not so! Many perennials prefer shade, prospering in a range of conditions ranging from deepest woodland gloom to areas of dappled or filtered light to those that get morning sun and afternoon shade.

Not only that, but many plants appropriate for shade have beautiful leaves — you can find amazing variety in shape, texture, and even color. And you may be pleasantly surprised to hear that plenty of shade plants produce attractive flowers.

Shade is actually a benefit to many plants. Lack of direct sun means their leaves look healthy and lush, without burned edges or tips, without drying out or wilting. Sunlight also tends to bleach out the beauty of variegated leaves (leaves that are marked or rimmed in white, cream, or gold), whereas in shade, such foliage thrives and lights up the scene. Shelter from the sun's hot rays also preserves flower color.

Favorite shade perennials include ajuga, astilbe, bergenia, bleeding heart, brunnera, coral bells, corydalis, epimedium, many ferns, hellebore, hosta, lady's mantle, lamium, lily-of-the-valley, lungwort (pulmonaria), primroses, Solomon's seal, and sweet woodruff.

Dry soil

If sandy, gritty, or fast-draining soil is your lot, a fabulous perennial garden is possible. Save yourself a lot of blood, sweat, and tears by working with what you have. Sure, digging in some organic matter at planting time (and on an annual basis) is good advice that you should follow when you can, but your gardening life can be a lot easier if you go native. You don't have to pour on water you don't have, and you may be delighted with the easy maintenance and attractive look.

TIP

Go native. Perennials native to dry ground are your best bet. Before you protest that they aren't attractive or are probably weeds, take a fresh look. Peruse the offerings at a local nursery that specializes in indigenous plants. Visit a public garden or botanic garden with displays of natives. *Your eyes will be opened.* Botanists and horticulturists feel your pain and have been working hard over the years to find out which ones adapt best to gardens and which ones are prettiest. There are even selections or cultivated varieties (cultivars) that are significant improvements over their wild parents — new flower colors and bigger, longer-lasting flowers on more-compact, handsome plants.

Other advantages of choosing native plants is that they're usually more pest- and disease-resistant. Furthermore, they're ecologically friendly and will help your garden become a sanctuary for sorely pressed creatures such as pollinators including bees, birds, and butterflies.

Favorite dry-soil perennials include black-eyed Susan (rudbeckia), blanket flower, baptisia, butterflyweed, epimedium, evening primrose, gaura, pachysandra, penstemon, phormium (a tender perennial in most regions), and yarrow. And don't overlook cacti and succulents — a well-stocked local or mail-order nursery can convince of their astounding range and beauty.

Wet soil

Soggy, boggy ground is usually written off as a lost area or liability. But what if that damp side yard, wet back forty, or perpetually muddy roadside ditch were to come alive with handsome leaves and blooming color? It's certainly possible. A host of plants actually like wet feet; a little research can point you to the ones that are a match for your problem-spot's conditions.

You may have to wade in prior to planting and get the spot ready. Bring your rubber boots and create a hospitable open area with gusto and determination! Yank out most or all the existing vegetation so it doesn't compete with the desirable incoming perennials. If warranted and practical, dig a drainage trench to route excess water away from the spot. Perhaps dig in some organic matter to improve soil fertility and drainage, if only a little.

After you've planted the area with appropriate moisture-loving perennials, not much more should be required. The plants' basic need — water — is already present. If the plants are happy, they'll increase over time, reducing the need for weeding or indeed, any intervention on your part. If they grow too lushly, why, you can rip out and discard or give away the extra plants.

Cardinal flower, various carnivorous plants, daylilies, forget-me-not, Japanese primrose, marsh marigold, monarda (beebalm), and turtlehead (chelone) are good plants for wet soil. Don't apologize for the wet soil: Go ahead, call it a bog garden! And if you're ambitious, make the boggy area the entry to a new water garden — see Chapter 20 for details on ponds.

Clay soil: Soggy soil at its worst

If your yard has clay soil, you already know it. Slick and soggy in wet weather and nearly impenetrable in dry, clay soil is actually composed of lots of densely packed, very tiny particles. Clay leaves little space for air and water to circulate, and the result is heavy ground that drains poorly. Needless to say, many perennials — or rather, their roots — have a hard go of it in such conditions (and so does your shovel or trowel, for that matter).

Clay soil does have some advantages, believe it or not. It's often fairly fertile because it holds nutrients and water so well. And of course, it's slower to dry out in hot weather, which can help your plants.

At any rate, if clay is your lot in life, you have three options:

- **Improve the soil's structure.** Add organic matter. Doing so can help lighten and aerate the area, making it more hospitable to perennials and other plants and allowing water to drain away better. Dig organic matter in often and deeply — compost and/or well-rotted manure are up to the job. (For details on soil improvement, check out Chapter 4.)
- **Go with what you have.** Plant clay-tolerant perennials, such as beebalm, cardinal flower, chrysogonum, epimedium, many ferns, galax, gunnera, Japanese iris, Japanese primrose, marsh marigold, or myosotis.
- **Bypass it.** Grow your perennials in raised beds (see Chapter 15) or pots (Chapter 19).

Deciding when to plant perennials

Perennials tend to be rather tough and forgiving plants in terms of picking the right time to plant them, but generally, most people plant perennials in either the spring or the fall.

WARNING

Perhaps the best way to know when to plant perennials is to know when *not* to plant them. For example, avoid planting perennials in stressful conditions, or you will, as the saying goes, reap what you sow. No-no times include

- Any blazing hot day
- Any time of drought
- Any time when frost is predicted
- Any time when the ground is soggy or still frozen
- Right after a deluging storm or flood

Read on for some seasonal planting advice.

Spring planting

Springtime is the preferred time to plant perennials for good reason. All the conditions these plants relish and respond to are in place: warming soil, warm sunshine, longer days, moist ground, and regular rainfall plus an entire growing season ahead. Roots quest into the ground, taking up water and nutrients to fuel growth, and *top growth* — foliage, stems, and flowers — surges forth.

When getting ready for spring planting, make sure you do the following:

1. **Harden the plants off.**

   Just like you wouldn't plunk a new goldfish into its tank without letting it adjust to the temperature, you don't want to give your perennials an environmental shock. Let new plants adjust to life outdoors for a few days or a week by sitting them in a sheltered spot, such as on the porch or against the semi-shady side of the house. Start the plants off for just a few hours, and increase the time until they're outdoors 24/7. (But bring perennials indoors or cover them if there's a threat of a late frost.) Cover them with single layer of newspaper to reduce the light intensity and wind exposure for a few days.

2. **Choose a cool, cloudy, or damp day to plant, or plant in late afternoon.**

   The hottest part of the day (midday to early afternoon) is a bit stressful to both you and the plants!

3. **Plant in good soil, create a basin of soil or mulch around each plant, and give a good, soaking watering.**

   Check that the water drains in where you want it.

4. **Mulch after planting.**

   Not only does this step hold in soil moisture and moderate the effects of fickle, fluctuating spring temperatures, but it also keeps weeds at bay (they love to grow this time of year, too).

WARNING

Here are some things perennials find unpleasant. During the spring, don't

- **Handle the plants roughly with possible damage to the leaves, stems, and roots.** Instead, handle them gently, no pulling or tugging.
- **Plunk a root-bound plant into the ground.** Either tease apart the roots a bit or lightly score the sides with a sharp knife, which inspires new root growth. *Then* you may place the perennial in its planting hole.
- **Plant perennials in waterlogged ground, or drench them right after planting.** A moderate dose of water is a needed drink; too much water prohibits oxygen from getting to the roots, and the plants literally drown or rot.

Fall planting

Autumn turns out to be a fine time to plant many perennials in temperate climates. The soil and air are cooler now and sunlight is less intense, so the weather's less stressful for newcomer plants. Competition from weeds isn't likely to be a big problem, either. Buy bigger plants at reasonable prices during autumn that have grown for an entire season at the nursery.

In some regions, rainfall becomes more regular, too, which helps provide the moisture the perennials need to start good root growth. And their roots *do* grow — the plants simply aren't programmed to start producing lots of new leaves or flowers at this time of year. Yes, the perennials will soon head into winter dormancy, but fall planting often gives these perennials a head start over their spring-planted counterparts.

When spring rolls around, you may notice the difference. The fall-planted perennials should be raring to grow, larger and more robust. You can expect a good show. You now know something that many gardeners don't. Seize this opportunity!

Fall planting also applies to perennials you want to dig up and move to a new spot and to *divisions* (strong, rooted pieces of overgrown plants). When getting ready for fall planting, make sure you do the following:

- Buy good, strong plants. These plants have the best chance to establish themselves in your garden.
- Mulch a little at planting time, about ½ (1.2 cm) to 1 inch (2.5 cm), to hold in soil moisture and warmth; mulch even more as winter arrives, another 2 (5 cm) or 3 inches (7.6 cm) after the ground freezes, to protect the plants during the cold months. (For more info on mulching options, see Chapter 4.)
- After the first frost or freeze, cut back the top growth, just to further urge the plant to concentrate on root growth.

WARNING

Here are some things to *avoid* during fall planting:

- **Fertilizing:** Fertilizing inspires a fresh spurt of young shoots and leaves, which are vulnerable to cold damage. You want perennials to enter their winter dormancy.
- **Plant late-bloomers:** Late bloomers (like asters, mums, black-eyed Susan, and perennial ornamental grasses) are better planted in spring.

REMEMBER

Make sure, before you find out the hard way, which plants relish fall planting and which don't. You can always double-check at wherever you buy perennials in the fall. Reputable nurseries don't sell plants that resent being planted this time of year. Some fall-planting favorites are daylilies, peonies, oriental poppies, and rhizomatous iris (refer to Chapter 8).

Preparing for the actual planting

How to plant your perennials has a lot to do with how you acquired them, whether by mail-order, from the local nursery, or from a fellow gardener. If you purchased your plants mail-order as pots or bare roots, here's what to do when they're delivered to your home:

WARNING

1. **Immediately unpack and inspect the plants.**

   Don't let the packed plants stay in an unopened box in the sun.

   Be on the lookout for obvious problems of pests or rot. And you want to see crisp roots. You may or may not see much green growth.

2. **Hold the plants in a cool, dark place until you're ready to plant them — perhaps for a few days or a week at the most.**

   The refrigerator is also fine. Mist them lightly if they seem dry.

   TIP

   If you can't plant right away, pot them, water well, and care for them in a sheltered location.

3. **On planting day, rehydrate the roots by soaking them in a bucket of tepid water for a few hours.**

Here's how to handle plant divisions (see the section, "Dividing perennials," later in this chapter for info on doing the separation):

- **Keep plant divisions moist.** Don't let them dry out! This idea is especially important if you're not prepared to plant the divisions in your garden right away. Place them in a plastic bag or box and sprinkle on some water or temporarily pot them; water well.
- **Clean them up.** Tug out weeds in the pots and limp, yellowing, or damaged foliage. Cut off flowering stalks (don't worry, they'll generate new ones soon enough). Right now, you just want to the divisions to devote their energy to establishing their roots in your yard.
- **Plant in a prepared area and keep an eye on them.** Don't just toss divisions on the ground and hope for the best, even if your friend characterized them as tough guys. They need time, water, and weeding to get established.

See the preceding section for seasonally specific planting tips. For advice on planting perennials that come from a local store or supplier, refer to the planting instructions for annuals in Chapter 6.

Taking Care of Your Perennials

Generally, perennials require the same type of care as annuals (see Chapter 6) with a few modifications that depend on the type and size of your perennials. Mature perennials can grow quite large and may require some help in staying upright, or they may need to be trimmed down or separated if they grow too large or crowded for their space. Keep a lookout for any pest problems that may show up. These sections share advice on how to handle some of these basic perennial care issues.

Supporting with stakes or rings

Because some perennials are tall, or tall and broad, a little support is a good thing. It not only keeps the plant more in bounds and manageable, but it also prevents the plant from keeling over under its own weight. You've been waiting for those flowers — don't let them cast downward or flop on the ground!

TIP

Some of the stakes that are available for purchase are wimpy and simply don't do the job of holding up tall spiked perennials like delphinium. In fact, I've resorted to making my own quite easy. A quarter-inch (.6 cm) round steel rods generally available in 3 feet (about 1 meter) to 4 feet (2 meter) lengths work well for many perennials. For perennials with very tall and heavy spikes I use half-inch (1 cm) rebar. Both these items are readily available at your local hardware or home store. I usually paint them dark green with spray epoxy paint so they blend in with the foliage.

You can also use rebar stakes pounded in the ground next to your less sturdy stakes and supports to reinforce them. I attach the stakes to the supports with plastic zip ties. I've found doing so especially helpful with peony hoops. Refer to Figure 7-4 for an example.

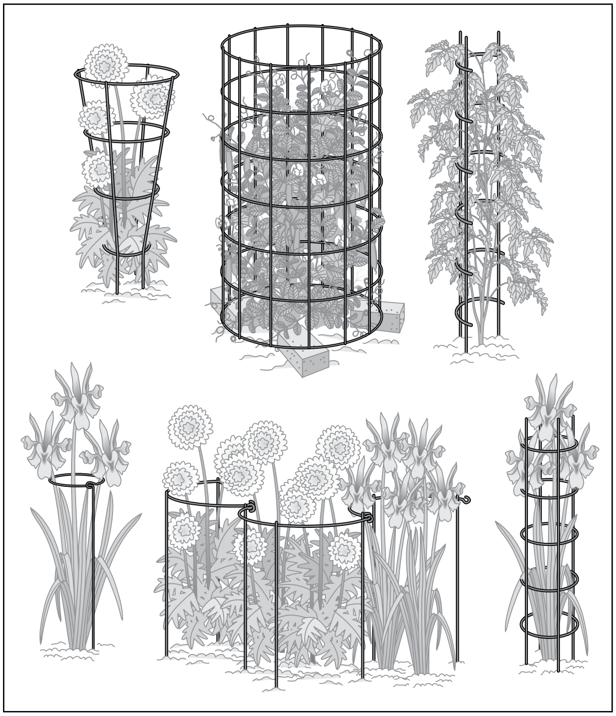

FIGURE 7-4: Plant supports do more than support plants; they can also help them grow better and produce more blooms.

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TIP

Here are a few important tips to remember about using perennial supports:

- **Install early.** Press a *peony hoop* (a ring on legs that's useful for many more perennials than just peonies) over the plant well before it reaches the hoop's height. This way, you can center the support right over the plant, and when the perennial does grow as expected, the stems, leaves, and flowers will froth over the hoop and hide it from view — without a struggle. Early installation also reduces the risk of damaging the root system as you poke the support in.
- **Press the support in deeply.** At first, the support may be equal to the job, but as the plant grows ever-larger, the stake or hoop may lean or slump. Anchoring the support deeply at the outset can make the support more stable and stronger. A foot or more into the ground is usually best, depending on the plant.
- **Help out with ties.** As the plant grows, check on it and fasten the stem or stems to the support at regular intervals. To avoid abrading the plant tissue, use soft material (not wire! Try string, plastic tape, plastic zip ties, or cloth); if you loop it once around the stem and create a second loop for attaching to the support, the plant will be able to move in a breeze but still be held gently but firmly to its appointed place. (Use green string or cloth, and you'll hardly be able to see it.)

- **Be tidy!** Remove and store or discard the support at season's end. This step will also remind you to cut back the perennial (and mulch if your winters are cold). With a season's experience under your belt, you should now know whether the support is the right one for the job and thus worth saving or replacing. If you need something more substantial, add it to your springtime shopping list.

You really don't know whether a perennial needs support until you grow it. Whether a support is necessary depends not only on the type of plant but also on cultural conditions — a plant that may be self-supporting in full sun in a protected location may need to be staked if grown in a shady spot or one with a lot of wind. Perennials that do need support need it every year.

Practicing good grooming habits

Perennials look better with a little grooming, but don't feel you have to fuss over them. Just remove dead or damaged stems, wayward ones or ones that are crowding others. The same goes for foliage that doesn't look good. And always clip or snap off stems at ground level (beheaded and short stems don't look good). You can pinch off smaller branching stems or individual leaves.

Spring and summer, when perennials are growing, are the best times to groom. The grooming doesn't traumatize the plant, and new growth can soon fill in and hide your cuts.

OFF WITH ITS HEAD! DEADHEADING YOUR PLANT

Deadheading is just a gardening term that refers to the practice of removing spent flowers or flower heads. Not only does it leave your perennials looking nicer, but it also encourages more blooms. Deadheading works by thwarting the plant's natural inclination to go from flower to seed and thus finish up for the year. If you deadhead, the chemical messages that put that process in motion are stopped and the plant redirects its energies into making more buds and thus more flowers. You can keep a perennial in bloom a lot longer by doing this.

So make a habit of deadheading your perennials every time you walk by. Toss the faded flowers on the compost pile. Or bring your clippers along and cut bouquets while the flowers are still in their prime — cutting fresh flowers has the same effect as later deadheading!

Dividing perennials

A number of perennials need periodic dividing. You know when yours do because the plants are growing in ever-denser clumps and the flower show isn't as prolific as it was in previous years. The interior of the clump, in particular, may become disappointingly unproductive.

Rejuvenation is possible and easy! Review Figure 7-5 and follow these steps:

1. **Dig up the clump, taking care to get as much of it as possible without damage.**

   Most roots are in the top 12 inches (30 cm) of soil, and the root's mass will usually be the diameter the plant plus 3 (7 cm) to 6 inches (15 cm) beyond the plant. For digging and transplanting, going larger than this shouldn't be necessary.

2. **Cut or cleanly break the clump into two or more pieces (divisions), each with an obvious growing point and some roots.**

   Work on the clump quickly so the plant parts don't dry out too much (you can cover them with a tarp or mist them occasionally if need be). Discard any unproductive portions and any shriveled or rotten parts. Leave the roots surrounded with the soil to protect the root hairs from drying out and becoming damaged.

3. **Replant the new pieces, some in the same spot and the others perhaps elsewhere in your yard (or give them away to other gardeners).**

   Water the divisions in well and look in on them regularly. They should generate new, smaller, vigorous plants.

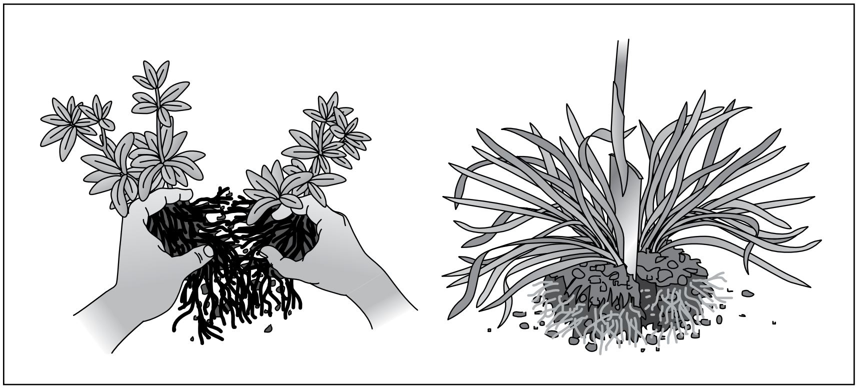

FIGURE 7-5: Two different methods for dividing a perennial.

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Here are some tips for success:

- Good timing is important to give the new pieces the best chance of prospering. Early spring is usual, but you can divide some (notably poppies and peonies) in the fall.
- You can pry apart fibrous-rooted perennials with your bare hands; all others require sharp, strong, clean tools that are equal to the job: a stout knife, a trowel, even two spades or gardening forks braced back-to-back.
- Plant in good (fertile and well-drained) ground. Perhaps the original spot could use a dose of organic matter before you return pieces to it; when planting elsewhere in your yard, prepare a bed in advance so you can move quickly. See Chapter 4 for info on soil amendment.

Preparing perennials for winter

If you live in a cold area and want to overwinter your tender perennials, simply dig up the roots or entire plant and bring it indoors to a nonfreezing spot to spend a few months as a dormant or semi-dormant houseplant. Pot the plants in good soil and grow them in a cool (40–50° F, 4–10° C) and bright area. Keep them barely moist. The idea here is to just keep them alive until you can plant them back outside after the danger of frost next spring. With warmer temperatures and brighter light, they'll spring back to life.

You can also trim and prune down your perennials and use mulch to protect them through the winter. See Chapter 4 for more information on mulch.

Dealing with perennial pests and diseases

Good news — perennials aren't especially pest-prone. If they're growing in an appropriate spot with elbow room and you water regularly, they're in good shape. And healthy plants are your best defense against potential problems. Here are a handful of the common perennial-garden pests:

- **Aphids:** These small whitish critters congregate on stems and nodes, sucking the life out of your plants. A strong spray from the hose can dislodge them. Ladybugs can also make a quick meal of aphids, so don't get rid of these helpers. Insecticidal soap is another safe control option.

- **Black vine weevils (snout beetles):** In late spring and early summer, these critters are harmless pupae resting in your soil. Then the adults emerge and eat the foliage of dozens of perennials (and lay eggs for the next generation while they're at it). The telltale sign is notched leaf edges, especially lower down on the plant where the insects find more shelter. Starting in early fall, the newly hatched grubs eat roots.

  Launch your counterattack in fall by releasing beneficial nematodes (roundworms), available from well-stocked garden centers and mail-order sources; apply according to label directions. Other pesticides are registered for controlling these creatures; check with you local Cooperative Extension Service agent for more information.
- **Leaf miners:** These bugs form brown or tan or clear traceries — tunnels or channels — on affected leaves but rarely kill the plant. Just remove and discard affected leaves, and the plant will generate new ones.
- **Root nematodes (roundworms):** Affected plants develop severely distorted growth. Rip the plants out and discard them before the problem spreads.
- **Voles:** These little rodents slip out of their underground tunnels when you're not looking and nibble on your perennials, especially the leaves but also roots, seeds, and bulbs. They're much more destructive to plant parts than moles. They're a bit larger than mice, with a shorter tail and smaller ears. You can try trapping them with a baited mousetrap, but the best deterrent is a cat who's a good hunter. Castor oil as a repellent works fairly well (see the "A slick trick for keeping out moles and voles" sidebar). You can also surround plants with small moats of sharp gravel. These critters are especially destructive to hostas and bulbs. Refer to Chapter 8 for how to protect susceptible plants.

As for diseases, they, too, are mercifully few on healthy perennials. You may encounter mildew or other fungal diseases. These problems appear as spots or a powdery coating on leaves, and severely affected plants may have distorted growth and buds that fail to open. Most of these problems show up at the end of the growing season when the plants have already made their show. If the problems are bad, tear out the plants or resort to spraying with a fungicide.

Some of the most common diseases you may encounter are powdery mildew, which causes a white coating on the leaves found on garden phlox and monarda (beebalm) and rust (a type of virus) on hollyhock (looks like the leaves have yellow measles) and aster yellows, which usually causes stunted growth on some coneflowers and asters.

If fungal problems are chronic in your garden, your best line of defense is good air circulation, particularly in hot, humid summer weather. Choose varieties that are disease resistant. Also, be sure to pick off and discard sick leaves or clean up fallen affected leaves around the base of your plants. Regular, even watering right at the roots (that is, not splashing the leaves) is also wise. That's why drip irrigation that only waters the soil and roots is a preferred way of applying water.

Of course, an easy way to avoid both pests and diseases is not to grow vulnerable plants! You can deliberately seek out varieties touted as resistant.

A SLICK TRICK FOR KEEPING OUT MOLES AND VOLES

If you're having problems with moles (or other small animals), try using this formula to drive them out of your garden:

- ¼ cup (60 ml) castor oil
- 2 tablespoons (30 ml) liquid detergent soap
- 6 tablespoons (90 ml) water

Blend the castor oil and soap together in a blender (they won't mix properly otherwise). Add the water and blend again. Store this mix in a container till needed.

When you're ready to apply the solution to the area where the moles are active, mix 2 tablespoons (30 ml) of the solution into 1 gallon (7.5 l) of water. Pour it into the problem area (all over the affected area, not just down the holes).

Because most of the damage from voles happens during the winter when these creatures are searching for scarce food, after frost is the most important time to apply this solution. You can also purchase granular vole formulations and spread them on the surface of the ground or bury them when planting perennials or bulbs.

IN THIS CHAPTER

- **Finding out what bulbs are**
- **Planting different kinds of flowers together**
- **Selecting and purchasing bulbs**
- **Putting bulbs in the ground**
- **Caring for bulbs**

Chapter 8

Brightening Up the Garden with Bulbs

Plant them, forget them, and wait to be surprised and delighted! Along with perennials, bulbs provide some of the earliest and latest color in gardens. Suppliers sell bulbs for all growing seasons — spring through fall — not just early spring. This chapter explores all you need to know about choosing, planting, and caring for these beauties.

Shedding Light on Bulbs

A *bulb* is a structure that grows underground; it stores food during its dormancy and then supplies energy for an emerging plant. You know what bulbs are if you buy onions or garlic at the grocery. Good ones are dense and have some heft to them, plus a thin papery skin (called a *tunic*) for protection; as bulbs age, their robustness diminishes, and they dry out. They sometimes begin to sprout the beginnings of green leaves out of their tops. Gardeners also consider foods like potatoes, sweet potatoes, ginger, and water chestnuts to be bulbs.

Garden bulbs are actually much the same as the ones at the grocery. Good ones have some plumpness and density because they're full of healthy, moisture-filled plant tissue. They really are a package of life! With the right conditions, and in time, they're sure to generate leaves — and the big payoff, gorgeous flowers.

REMEMBER

Although they sometimes don't look like it, bulbs are alive, so be careful when handling them. Don't store them aboveground for long because they'll soon shrivel and lose their vitality. Get them planted as soon as you receive them, so they have time to grow strong roots to produce flowers.

The following sections examine bulbs in greater detail: what bulbs are, when to plant them, and which ones are the most popular.

Defining bulb terms

When you shop for garden bulbs, you may immediately notice some variations on the underground-storage theme. The minor but key differences are worth knowing because they affect not only what sort of plants the bulbs produce but also how to divide them to get more plants. Here's a rundown of some of the plant structures that gardeners call bulbs:

- **True bulbs:** Bulbs are composed of concentric fleshy scales, or layers, which are actually modified leaves (see Figure 8-1). Yes, just like an onion. At the base of a true bulb is a *basal plate,* the place from which the roots grow. Examples of true bulbs include allium (flowering onion), amaryllis, daffodil, hyacinth, and tulip. Interestingly, when you cut a bulb in half, you can see the future plant parts — stem, leaves, flowers.

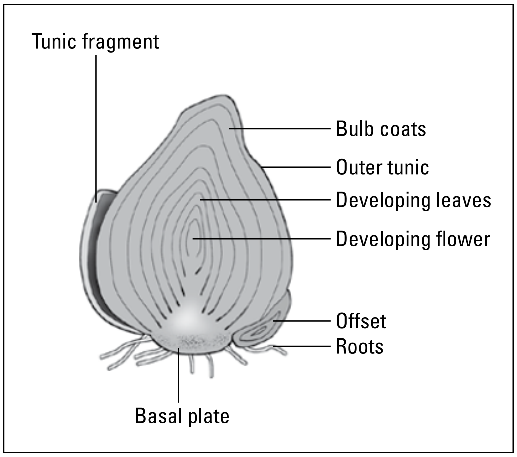

FIGURE 8-1: A bulb is really a plant in a protective package.

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- **Lily bulbs:** They're succulent and are much more susceptible to drying out so you must plant them as soon as you receive them from the supplier. Don't accept bulbs that are soft or shriveled. Lily bulbs (see Figure 8-2) vary greatly in size depending on the type of lily.

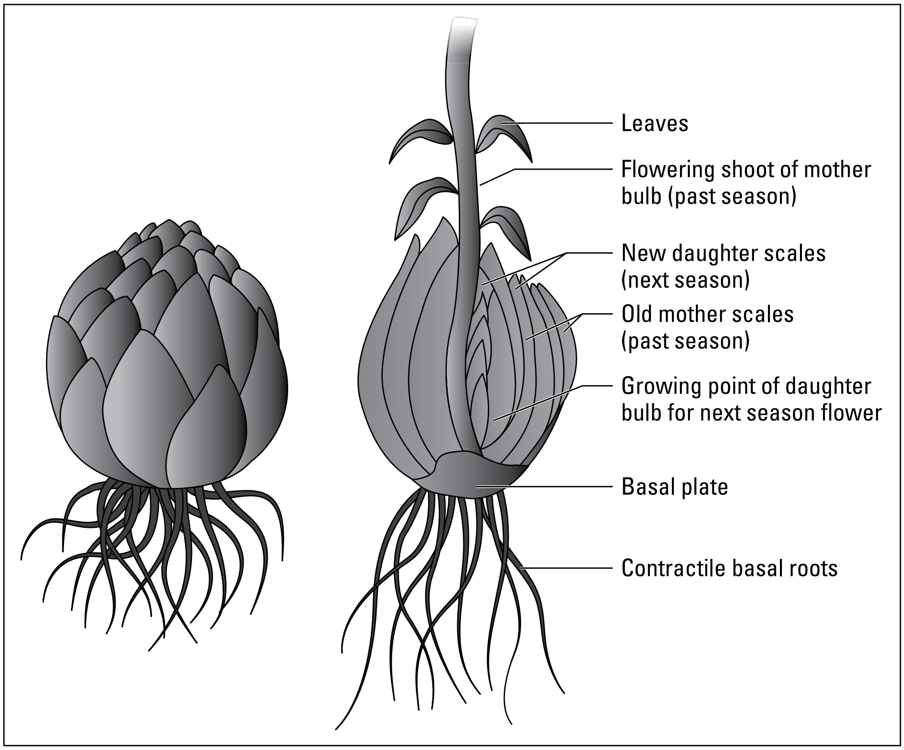
Leaves
Flowering shoot of mother bulb (past season)
New daughter scales (next season)
Old mother scales (past season)
Growing point of daughter bulb for next season flower
Basal plate
Contractile basal roots

FIGURE 8-2: Lily bulbs are constructed slightly different than other bulbs.

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REMEMBER

Lilies are one of the few bulbs that you can plant either in the spring or fall.

Offsets that you can pry off and plant may appear (see Figure 8-3). In some cases, notably with lilies, you can grow new plants from individual scales.

- **Corms:** These structures resemble true bulbs somewhat, with a growing point on top and a basal plate at the bottom (see Figure 8-4). However, they don't have the clasping modified leaves; technically, corms are swollen underground stems. Also, they use up their store of food in one growing season — though new little *cormels* (baby corms) often appear atop the old one to carry on. Examples include autumn crocus, crocus, crocosmia, freesia, and gladiolus.

WOW YOUR GARDEN WITH AN ASSORTMENT OF LILIES

If you don't have any lilies in your garden, you're missing out on some spectacular additions. Today's lilies are a different breed of cat from lilies of old. Today varieties of these majestic flowers that bloom from spring until late summer are hardy and disease tolerant. Many have knock-your-socks-off fragrance. Here are some of the different types:

- **Asiatic lilies:** They're the earliest to flower and have outfacing flowers of a wide range of colors, but they don't tend to be fragrant.
- **Oriental lilies:** They bloom later and are usually very fragrant.
- **Trumpet lilies:** These types have flowers shaped like trumpets and are usually fragrant.
- **Martagon lilies:** They're smaller flowers that are reflexed and do great in a shady woodland garden.

If you're into an exotic look, you can try some of these lilies. You can also consider the various hybrids. So many choices! Many of these newer hybrids aren't available at your average garden store, so check out the North American Lily Society's website at `www.lilies.org` for more descriptions and recommended sources. My garden is full of these garden gems, and I can't imagine being without them.

People commonly confuse daylilies and lilies as the same. In fact, they're different. The main difference is that the true lily (Latin name *Lilium*) is a bulb whereas the daylily (Latin name *Hemerocallis*) is an herbaceous perennial, with a hefty root system and shoots that sprout from a thick stem called a rhizome or rootstalk.

- **Rhizomes:** Rhizomes are thickened stems that grow horizontally; the roots grow down from the underside (see Figure 8-5). The tip tends to have a primary growing point, though productive side-buds are common, and you can cut them off and plant the buds individually. Examples of rhizomes include agapanthus, bearded iris and many other irises, canna, and lily-of-the-valley.
- **Tubers:** Tubers are swollen stem bases. Roots grow from their sides as well as their bases, and you may see multiple productive buds. A classic example of a tuber is the potato. Other examples include most anemone, tuberous begonia, caladium, cyclamen, dahlia, and gloxinia.

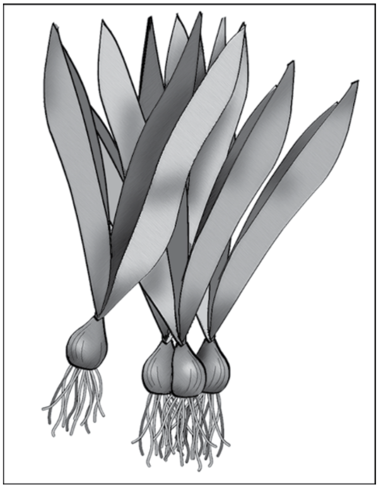

FIGURE 8-3: True bulbs form offsets that you can pull apart to for more plants.

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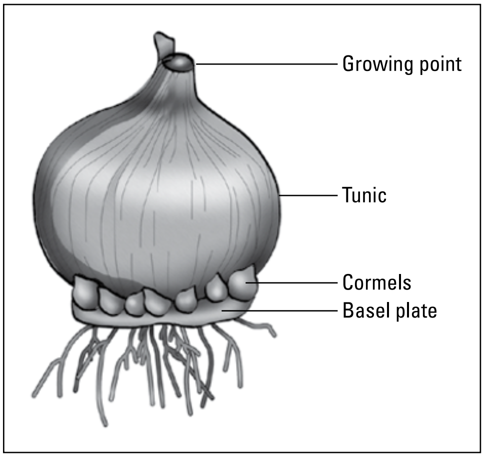

FIGURE 8-4: Corms resemble true bulbs in many ways; this corm has little cormels at its base.

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The way to divide tubers varies by the type — dahlias, cyclamen, and gloxinia involve different methods. Generally, you want to cut the tuber so that each piece contains a bud.

- **Tuberous roots:** These structures are in fact roots, not modified stems (see Figure 8-6). Fibrous roots, like fingers, radiate outward from a central point. You can easily divide these roots to get more plants, making sure, of course, that each piece has at least one bud on it. Examples include alstromeria, clivia, eremurus, and ranunculus.

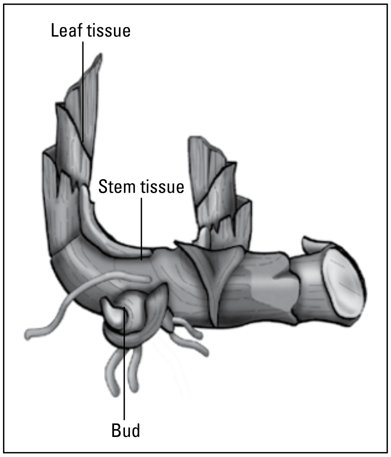

FIGURE 8-5: Rhizomes grow sideways.

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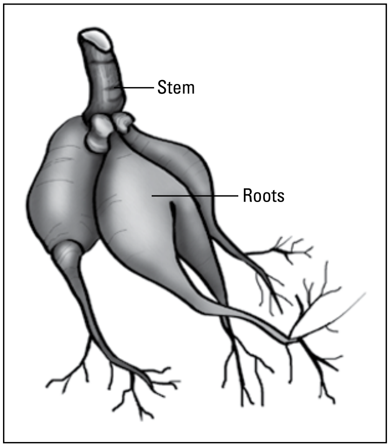

FIGURE 8-6: Tubers roots look like swollen roots.

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Many gardeners discuss the differences between hardy bulbs and tender bulbs. Unfortunately, making the distinction isn't easy, because a tender bulb in one climate (like Zone 4) may be a hardy one in Zone 7. Generally, *hardy bulbs* can survive wintering in the ground without too much trouble, whereas *tender bulbs* have to be dug up and stored. Your local nursery can help you determine which bulbs are considered hardy in your area.

Looking at early and late bloomers

Many bulbs bloom in springtime — those bulbs are the most familiar and beloved to gardeners in cold-winter climates. However, fewer but no-less-pretty ones make their show in summer or even fall. See the next section for examples of these types of bulbs.

The reason people plant most spring-blooming bulbs in the fall is not just so the plants can get a head start on root growth. These bulbs also need a period of cold (so obligingly supplied by a winter in the ground) to maintain their biological clocks. The warmer, thawed-out but moist soil of spring, not to mention the warm sun above, coaxes them at last to burst into their full and glorious potential. In mild-winter regions, gardeners can buy some bulbs pre-chilled (these plants have a limited selection compared to all the spring-bloomers), or gardeners can refrigerate regular bulbs for a specified period (at least eight weeks) and then plant them in late winter or early spring.

Getting acquainted with the most popular bulbs

You can find many different types of bulbs, but they have one thing in common: They're packages of life, waiting to be planted. They differ from seeds in that they contain within them the beginnings of leaves, stems, and flowers. All they need is to be planted and watered, and the growth process can begin.

The common spring-flowering bulbs include crocus (Figure 8-7), tulips, noted for their impressive range of flower colors; daffodils, some of the most rugged and easiest to grow of all bulbs; and lilies, which, by planting different varieties, you can have blooming from late spring to early fall. See the following sections for advice on how to let them take the spotlight in your garden plans. In this chapter, I also introduce you to some less-known players that are well worth your while.

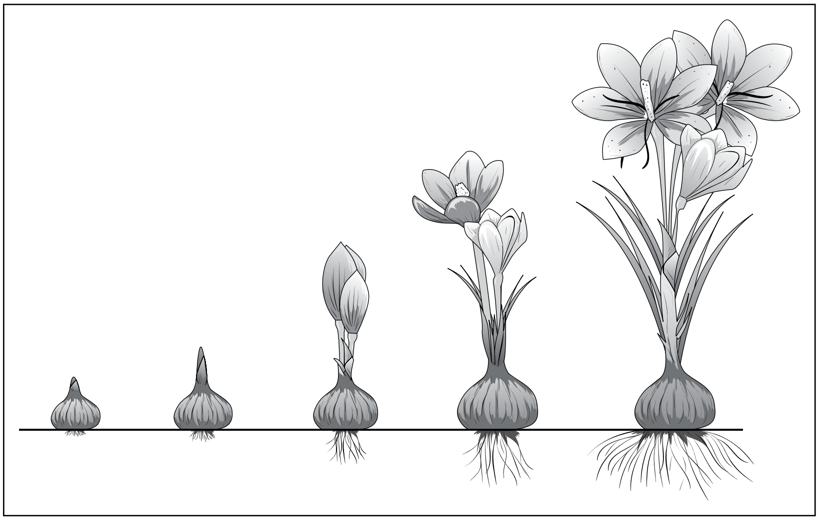

FIGURE 8-7: Stages of flowering for crocus.

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Choosing to Combine Your Bulbs

A lone bulb isn't much of a show; nor, in truth, is a scattering or a single row of a mere dozen. Bulbs are meant to be planted, enjoyed, shown off in generous numbers. The more, the merrier!

This need for company isn't just because bulbs are small plants. In fact, some plants can grow fairly tall and even sport big, dramatic flowers. The case for putting in lots of bulbs, in sweeps or mix-and-match displays, is compelling: The whole is inevitably greater than the sum of the parts. Flowering bulbs simply look fabulous in groups; their natural exuberance is multiplied.

Read on for some design ideas (for general info on designing a garden, go to Chapter 2).

Combining various types of tulips

If the only tulips you know are the classic red ones lining a neighbor's walkway, you're in for a treat. The world of tulips is amazingly varied. You can find a wonderful range of hues, from royal purple to golden yellow to shell pink to pure ivory white; there are also many fabulous bicolors, especially the smashing red-and-yellow and pink-and-green ones. Forms also vary, from the popular goblet-shaped flowers (mainly the *Darwin hybrids*) to ones that resemble plush peonies or elegant lilies. Some tulips have flared or fluted petals or petals with fringed edges. Some are nearly knee-high; others are surprisingly low to the ground. All tulips are equally easy to grow.

But before you get carried away with an ambitious planting scheme, remember also that although tulips are always spring bloomers, they don't all bloom at the same time. You can find everything from "single early" to "double late" tulips, and you have to take these designations into account if you want your plans to work out. Check out the following tips for different types of displays:

- **For single-color displays:** Use a large quantity of the same exact tulip variety and plant closely.
- **For mixed-color displays:** Stick to a theme, such as pastel or bold colors. Tuck in a few bicolors that tie the display all together. Of course, if you have lots of space, going for the full rainbow can be fun, but to be effective, such a show needs to have a generous number of tulips in every hue.
- **For a longer-lasting show:** Research the bloom times so you get a range. Then mix up the varieties up throughout the display so it doesn't look unbalanced and so something is always in bloom.

- **For smaller areas or pots:** Choose tulips of different heights and place the taller ones in the middle. That way, you can distinguish each one, and the variety and complexity of the show gives it more splash.

Bulb catalogs and websites as well as some bags sold in retail outlets are often marketed to help you do any or all these things. They do the work for you/take out the guesswork.

WARNING

Don't plant your tulips in a shady spot. Some spring bloomers don't mind shade, but tulips do. Also, don't plant in a low, soggy spot — they'll rot!

Mixing up your daffodils

Daffodils simply don't have the color range that tulips do, but they do offer a fresh elegance in their whites, creams, yellows, oranges, and near-pinks. Daffodils come in about a dozen different forms, too, which aficionados call *divisions.* These varieties include the ever-popular trumpet forms; little ones that bloom in clusters; daffodils with tiny, almost flat trumpets; and flowers with trumpets so plush with petals they hardly seem like a daffodil at all.

A great feature of daffodils is that nothing likes to eat them! Not squirrels, not mice, not voles, not rabbits, not deer!

And many daffodils are scented. Most have a light, sweet perfume that's not overpowering. (If you're after knock-your-socks-off fragrance, check out the jonquil type of daffodils.) To capitalize on fragrant daffodils, plant them in quantity so they can make an impression. Or at least plant enough so you can spare some for bouquets and enjoy that wafting sweetness indoors. Here are some tips for choosing daffodils:

- **For single-color displays:** Daffodils whose petals and trumpet are both the same color, all-white or all-yellow, make excellent massed displays, lovely in their simplicity. For a little more definition, you can seek out a few differently named varieties in the color you like. Varied forms can make such a display more intriguing.
- **For mixed-color displays:** A planting devoted entirely to yellow-and-orange bicolor daffodils is a lot of fun. You can tuck in a few solids just to keep things interesting. Another nice idea is to mix the white-petaled, so-called pink-trumpeted daffodils with some plain whites.

  Blending all the colors and forms doesn't tend to work well, because the pastel daffodils jar against the bolder hues and a mix of varied forms often looks too busy.

A DAFFODIL BY ANY OTHER NAME . . .

What's the difference between a daffodil and a narcissus? None! *Narcissus* is the Latin name for the genus common to all daffodils.

Jonquil, another common name ascribed to daffodils, is proper only when you're referring a particular type, or division (Division 7), of daffodil called *jonquilla.* Essentially, the name refers to the species *Narcissus jonquilla* and its hybrids. These plants are the ones that have multiple flowers to a stem, and the blooms are usually very fragrant. In other words, all jonquils are daffodils, but not all daffodils are jonquils.

- **For a longer-lasting show:** Situate daffodils in an area that gets part-day shade or filtered light. The flowers, especially the pink varieties, will display brighter colors.
- **For smaller areas or pots:** You're best off devoting a limited area to a single variety or two compatible ones. Miniature growing varieties are also a perfect choice.

To help with your selections, daffodil merchants offer pre-mixed selections on various themes.

TIP

Don't mix daffodils of differing bloom times. When a daffodil is done blooming, you need to let the leaves die down (so they can replenish the bulb's energy stores for next year's show). Having some yellowing or drying leaves among up-and-coming bloomers doesn't look good at all!

Combining different kinds of bulbs

Ah, combining different kinds of bulbs is the most fun of all! A great coordinated burst of flowers is such a thrill to behold, especially after a long, cold winter. For maximum impact, you want a range of colors, sizes, shapes, heights, and bloom times. See Figure 8-8 for a mixed garden.

You can pull off this daring combination in two ways. The easy way is to buy the mixes offered by bulb merchants, often at quantity-discounted prices. The merchants do all the planning work for you; all you have to do is plant. If you're more of a do-it-yourselfer or you have some specific or creative ideas, by all means, research and make your own mix. All the information you need is on the bin or bag label or in the catalog descriptions. Exercise your creativity and design your own plan.

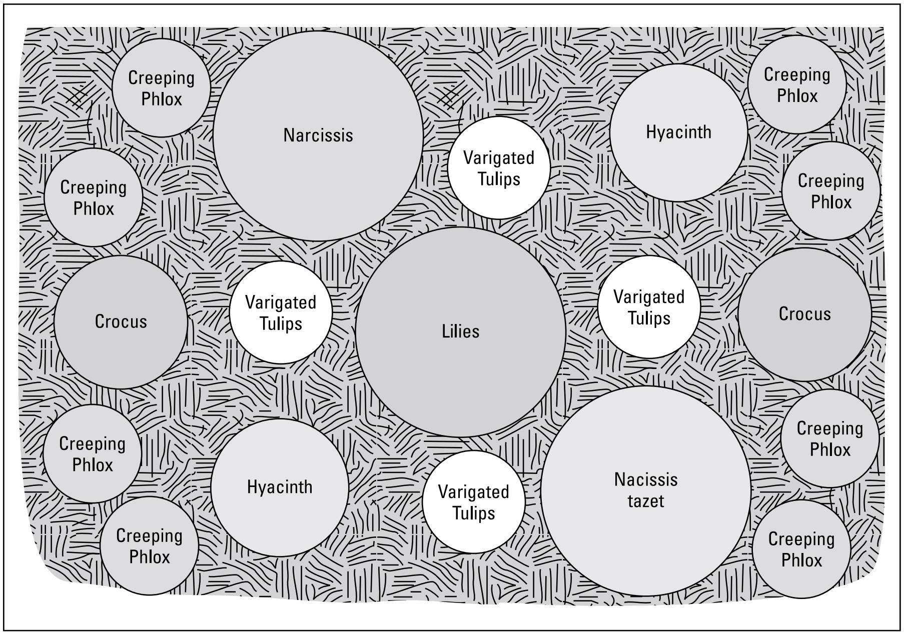
Creeping Phlox
Narcissis
Creeping Phlox
Hyacinth
Varigated Tulips
Creeping Phlox
Creeping Phlox
Crocus
Varigated Tulips
Lilies
Varigated Tulips
Crocus
Creeping Phlox
Creeping Phlox
Hyacinth
Varigated Tulips
Nacissis tazet
Creeping Phlox
Creeping Phlox

FIGURE 8-8: Interplanting a variety of bulbs to extend your bulbs season from early spring to early summer.

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Here are few tips for success:

- **Make growing conditions as good as they can be:** With properly drained soil and good lighting conditions, bulbs have the best chance of performing their best. (See the section, "How to plant bulbs" later in this chapter; the needs of most bulbs aren't that different.)
- **Buy good bulbs and plant them promptly.** Cheap, poor-quality, undersized bulbs or ones that sit around drying out too long before going in the ground are bound to be a disappointment, thwarting your vision for a colorful display.
- **Planting at different depths is okay.** Different bulbs are supposed to be planted at different depths, so a mixed planting will be pocked with some deep and some shallow — like a holiday fruitcake. That's fine, just so long as you don't plant one bulb right over another (and even if you do, the lower one will probably find a way around the obstruction and poke up and bloom anyway).
- **Casual is better than formal.** Mixed plantings that are laid out in neat patterns can be done, but they run the risk of looking rather stilted. A variety of bulbs cast about informally ends up looking livelier.

The Search: Where to Get Your Bulbs

Making a successful, beautiful bulb display doesn't begin at planting time. It begins when you go bulb-shopping or bulb-swapping. Neighbors can be a great resource for extra bulbs when they're dividing their bulbs. But do be picky: Free bulbs aren't a bargain if they aren't strong and healthy.

REMEMBER

Bulb quality can vary, so starting with good ones is key. Look for:

- **Appearance:** A fresh, good-quality bulb is plump and clean, without obvious damage to its outer layers. Avoid bulbs with disfiguring dents or blemishes, which can let in rot-inducing bacteria or fungi. Bulbs may contain a small amount of green penicillin mold, which is rarely harmful. Some bulbs, like anemone and ranunculus, always look dried up.
- **Heft:** Pick up a bulb and handle it for a moment. Then pick up a few others from the same basket or bin (of the same variety) and compare their weights. Bulbs that feel lightweight relative to their peers are likely to be dried out and not viable (they may even be last season's leftovers, for all you know). While you're at it, gently squeeze the bulb. A squishy texture indicates rot, but a good, firm feel means the bulb has sufficient moisture content.
- **Size:** With bulbs, bigger is better. A larger bulb has more stored reserves and therefore can produce larger and more flowers on more substantial stems. You get what you pay for; you can get incredible deals on bulbs, but they may be too young and small to bloom.

Buying bulbs — home stores and nurseries

You can buy bulbs in so many places these days. If you're a novice and need some planting information, want top-size bulbs, and need help with your selection, garden centers and nurseries are often your best choice. Home centers have a reasonable selection but usually sell smaller bulbs, and they rarely provide much gardening information.

Here are the advantages of buying bulbs in person:

- **Instant gratification and impulse buying:** You can get the bulbs you want, or come across others that tempt you, and buy them on the spot.
- **Immediate planting:** Shopping and planting on the same day is an option if you have the time and are feeling gung-ho.
- **The chance to observe the bulbs:** You can handle the merchandise before buying, checking the bulbs' appearance, heft, and size.

And here are the drawbacks:

- **Poor storage conditions:** Normal display-rack or display-box conditions aren't ideal for bulbs. Some may dry out; others may sprout prematurely. The smaller the bulb, the faster it dries out. In spring, summer-blooming bulbs are often displayed in home stores weeks, if not months, before the soil is warm enough for planting them. Lilies are especially prone to be dried out if not purchased soon after they're put out for sale.
- **Lack of variety:** Selection isn't all that varied.

TIP

Buy spring-blooming bulbs early for late-summer to early-fall planting. That way, the bulbs will be fresh and in the best condition, and you'll have the biggest selection.

- **Questionable contents in the bin:** Bulbs may get into the wrong bin as customers pick through them. You may end up with the wrong color or a completely different type of bulb.

REMEMBER

When selecting your bulbs, carefully read bin or packaging labels so you know the names of what you're buying as well as something about the plants, like how tall they get, when they bloom, whether they grow in sun or shade, and how far apart and deep to plant them.

Purchasing bulbs through mail-order

Sometimes you just don't have enough time to get to a retail store or you want a particular variety of bulb that's not commonly found in your local garden center or home supply store. This is where buying from a mail-order supplier can be a real advantage.

Here are the perks of sending away for your bulbs:

- **Quality:** Mail-order bulbs are frequently bigger and fresher. These mail-order suppliers also send them out at the proper time to plant. Every step of the way, from climate-controlled storage to the cushioned box they arrive at your door in, mail-order bulbs get premium treatment.
- **Selection:** Catalogs and websites devoted especially to bulbs are impressive: You can browse beautiful bulbs you've never seen at your local garden center. The selection of cutting-edge varieties also comes into play, because bulb merchants often work directly with Dutch growers to get the new and improved bulb varieties that sometimes aren't produced in enough quantity to be distributed by mass merchants.

Take a look at the disadvantages:

- **Wait time:** There's a lag between the time you place your order and the day you receive your bulbs.

  REMEMBER

  When you order the bulbs matters. If you order bulbs in the spring or summer to be sent the coming fall, you may wait many weeks. If you order them in the fall, delivery usually just takes a few weeks, sometime less. Wait time also depends on the supplier. If the seller has the bulbs in its warehouse in the United States, the bulbs are usually shipped faster than if they have to be sent to you directly from Holland.
- **Inability to inspect the merchandise:** You can't handle or inspect your bulbs until they arrive. However, all reputable mail-order suppliers guarantee their wares and will replace bulbs or refund your money if the bulbs don't meet your expectations. Find and read the guarantee and return policies, just in case you have to use them.

REMEMBER

All bulb vendors aren't the same. To find reputable vendors, do the following:

- Check out reviews online.
- Talk with fellow gardeners and friends for reviews, especially if they're in a garden club or are Master Gardeners.

If the bulbs are suspiciously cheap, they're probably not the best quality. Remember the old adage, "You get what you pay for."

Getting Down and Dirty: Planting Bulbs

There's a right time for everything in gardening. The general rule for bulbs is to buy and plant them as soon as they're available in the market. That's when bulbs are most viable.

When to plant bulbs

Bulbs aren't instant-gratification plants. They need some time in the ground before they send forth stem, foliage, and flowers. But they're not inert when they're in the ground, of course. They're generating root growth, which will help nourish the show as well as anchor the plants in place.

The following sections explain what different types of bulbs require, depending on when they bloom.

Planting spring-blooming bulbs

Spring-blooming bulbs require a chilling period. They're dormant when you get them and break dormancy only after the chilling. Winter conveniently supplies this necessary cold period! That's why you put the bulbs in the ground the fall before you want them to bloom.

Planting at the correct depth

A general guideline is to plant the bulbs at a depth of soil about twice the height of the bulbs. This can vary a bit. For example, if you have heavy clay soil, you may go a little bit shallower; if you have sandy soil, you can go a little deeper. Figure 8-9 is a chart that gives you more specific info about when to plant your bulbs.

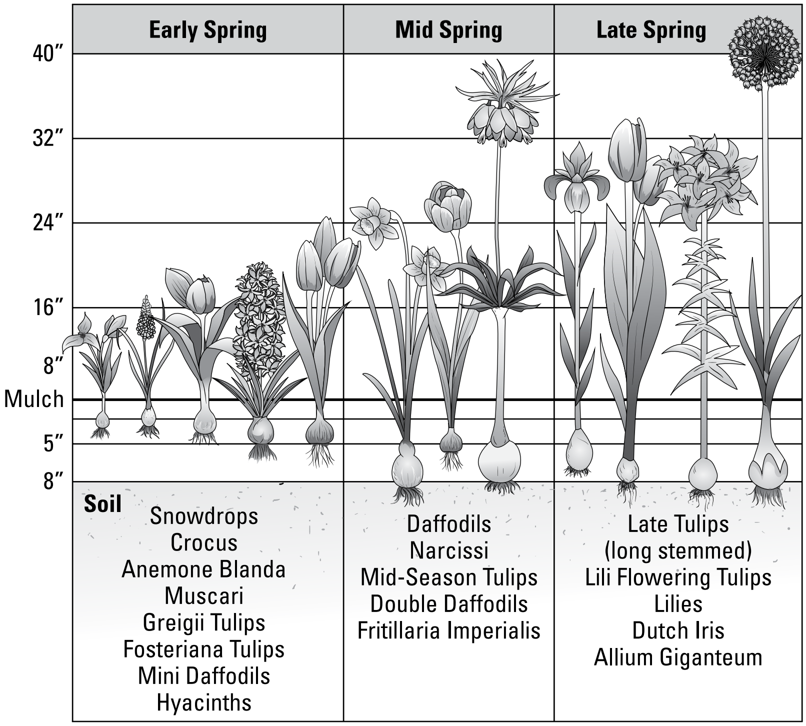
Early Spring
Mid Spring
Late Spring
40″
32″
24″
16″
8″
Mulch
5″
8″
Soil
Snowdrops
Crocus
Anemone Blanda
Muscari
Greigii Tulips
Fosteriana Tulips
Mini Daffodils
Hyacinths
Daffodils
Narcissi
Mid-Season Tulips
Double Daffodils
Fritillaria Imperialis
Late Tulips
(long stemmed)
Lili Flowering Tulips
Lilies
Dutch Iris
Allium Giganteum

FIGURE 8-9: Spring bulb planting guide.

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KEEPING YOUR COOL: THE SKINNY ON FORCING BULBS

Forcing bulbs may sound cruel, but the term merely means that you're encouraging the plants to bloom early by treating them in a special way. You can force potted bulbs into early bloom, but they still need 8 to 16 weeks to chill. Place the bulbs in the fridge, in an unheated garage that doesn't freeze, on chilly basement stairs, or in a *cold frame* (a wooden or concrete block box buried in the outside soil during the cold months). Some of the easiest and most popular bulbs to force are paperwhites.

As soon as you pot the bulbs you want to force, you have to keep them cool and the soil lightly damp. If the soil dries out, their roots won't form, and if the temperatures are too warm, the flower buds in the bulbs may end up being *blind* or will *blast* (they'll shrivel and never develop into full blossoms).

Forcing spring bulbs has two stages, and the first is the rooting period. For the rooting stage, place the potted bulbs in any cool (40–50°F;4–10°C), dark spot for 10 to 16 weeks. Some varieties take longer than others. Don't worry if the temperatures aren't in this range every day; the temperature range is just the ideal. The important point is that the bulbs are in a cool, not freezing, place to root. A refrigerator is perfect.

Tip: Before moving the potted bulbs to the next stage, look at the drainage holes in the pots. Roots should be growing out of the holes; if they aren't, put the potted bulbs back into a cool, dark area until they are. One of the most common ways people fail in this game is by not allowing the bulbs to root sufficiently before going to the next stage. Alternatively, the bulbs may be ready to come out of the big chill when you see at least an inch of top growth and the bulbs don't move when you try to wiggle them by hand.

After the bulbs are well-rooted, you can move them to the growing-on phase, where the foliage starts to grow and the eventually bulb blooms. First, you want the bulbs to adjust to warmer temperatures and higher light, so place the rooted bulbs in their containers in a cool, bright spot that's around 60° (15°C) for a few weeks. Remember to keep the soil lightly moist. Next, move the bulbs to an area that's slightly warmer — mid to high 60s — and very bright to finish the plant's growing-on cycle. A sunny, south-facing windowsill is fine. Turn the pots a quarter turn each day; otherwise, the stems will lean toward the light. You can also place the bulbs so their foliage is a few inches from a two-tube, or preferably four-tube, fluorescent light fixture.

The bulbs should bloom in about three to four weeks. The blossoms will last longer if you move the bulbs to a spot that's cool (in the lower 60s) and not quite as bright (without direct sunlight).

Planting summer-blooming bulbs

Most summer-bloomers, such as gladioli, calla lilies, dahlias, caladiums, tuberous begonias, and crocosmias, love warm soil and toasty summer sun. If you garden in a mild climate (Zones 8 to 10 — see Chapter 3), you can plant these bulbs in the early spring and expect flowers by summer. If you garden in a colder area, early spring planting isn't feasible. Instead, wait until late spring or early summer — the same time locals plant tomatoes outside — or start bulbs early indoors in a warm spot and care for them until danger of frost has passed; then you can move the plants outdoors.

In either case, after growth has started regular doses of all-purpose fertilizer (applied according to label directions) can nudge your plants into faster, more robust growth and more and better flowers.

To get flowers earlier and longer from these summer bloomers, visit a nursery in late spring or early summer (or place your order then with a mail-order house, either via catalog or website) and buy a larger, pre-started plant.

Planting fall-blooming bulbs

Spring gets all the attention, to be sure, but some bulbs bloom in fall, and they're gorgeous and easy to grow — and they're a wonderful sight to behold when the gardening year is winding down. Among this group are the autumn crocus (*Colchicum autumnale* — no relation to true crocuses — or *Crocus speciosus*), winter daffodil *(Sternbergia)*, Guernsey lily *(Nerine bowdenii)*, saffron crocus *(Crocus sativus)*, and even a species of snowdrops *(Galanthus reginae-olgae).*

TIP

If your local garden center doesn't have these, look for them in specialty bulb catalogs or on gardening websites. If you buy these online, be sure to order them early; companies generally send these bulbs out in early fall before they send standard spring flowering bulbs.

REMEMBER

Fall-blooming bulbs have a dormant period, too: summer. Thus, you ought to plant them in late summer — as soon as they're available — because the plants are ready to wake up. Some bulbs, like the autumn crocus, send up their leaves in spring and flower leafless in fall. Usually, these bulbs spring to life soon after planting — within a few weeks — though you'd best mark the spot so you don't forget them and plant something over them. In any event, the flowers will arrive on schedule.

Where to plant bulbs

Bulbs are some of the least demanding of all plants, but they appreciate your efforts to give them as good of a growing area as possible (with well-drained soil); they may reward your efforts with years of bountiful flowers.

Flowerbeds

Flowering bulbs are very happy in prepared flowerbeds. They receive the good, loose soil they relish and the elbow room they need. Here are two good approaches:

- **Bedding schemes:** Perhaps you've seen these beds in public display gardens: broad areas devoted to nothing but, say, tulips. The mass of color can be very impressive. You can prepare these flowerbeds at home. Pick a nice, open spot, choose a large amount of the same or similar bulbs (in terms of color, height, and/or bloom time), and plant them close together. Dig out all the bulbs in the entire bed and plant them all at the same depth so the flowering heights and times are uniform.
- **Mixed beds:** Bulbs are only part of the show in a mixed bed; they can share the stage with early-blooming perennials (Chapter 7), some colorful annuals (Chapter 6), and perhaps a few sheltering shrubs (Chapter 12). The overall show never declines: Whether you're waiting for the bulbs to burst into bloom or waiting for their fading foliage to die down, you always have something to look at and enjoy.

  TIP

  Some tulips have a bad habit of not continuing to rebloom every year. Deeper planting of tulips tends to encourage this. So, if you want this to happen, make sure you plant the bulbs deeper than you normally would at about 5" to 6" (12 to 15 cm). Let the foliage die back naturally every year, and choose the types of tulips that tend to "perennialize" (grow and rebloom every year), including the smaller ones like botanical tulips and the Greigii, which also seem to be less attractive to deer, and the larger tulips like the Darwin, Viridiflora, and Triumph types.

Containers

Growing bulbs in containers handily solves every display problem. Individual plants can get exactly the sort of soil and planting depth they prefer. When the bulbs come into bloom, you can place them front and center on your porch or patio or even tuck them into a flowerbed and enjoy them at their peak. You can turn or elevate the container to show off the flowers to best advantage. And when the blooms and foliage begin to fade away, you can move the plants out of sight and replace them with pots of fresh reinforcements.

Something about a potful of blooming bulbs is so immediate and perky. They're right before your very eyes, cheerily delivering their jolt of color. You can line your front steps with them or place a pot in the middle of the patio table, like a living bouquet.

REMEMBER

Pots dry out faster than garden-bed soil. Keep your potted bulbs watered. Consistent water (that is, every day or two instead only when the plants are gasping) leads to a healthier, longer-lasting show. Also, if you're in a cold climate, be sure to pot your bulbs in containers that can freeze without breaking, like plastic.

One drawback: In most climates, bulbs grown in containers are spent after one blooming cycle. If you enjoyed them, you have to start over next year with fresh new bulbs, unless the pot is large enough for the bulbs to go through their dormancy and remain in good health. For ideas and tips for container gardening, consult Chapter 19.

If you want a real show-stopper, plant various bulbs on top of one another. In general, place large bulbs on the bottom and small ones on top. You can even plant violas or pansies on the very top layer of the soil.

Amaryllis

Amaryllis in containers (see Figure 8-10) are in winners in any beauty contest. When these plants are in full bloom, they're simply a breathtaking sight. I remember as a youngster I grew my first amaryllis, and when they bloomed, I was just knocked over with the huge, dramatic flower. I was convinced that this result must have been because of my amazing horticultural talent. Later I was faced with the reality that it's about impossible to fail with them. You just pot them indoors (they require no cooling), wait until the flower starts to grow to begin watering, and then stand back and watch the show. If you want to add some more drama, plant three of these bulbs in one pot.

TIP

If you want to rebloom the amaryllis the next year, keep the bulb growing its sword-shaped foliage in its pot or transfer it to the garden after the danger of frost has passed. Keep it watered and fertilized. You want to encourage as much new leaf and bulb growth as possible because the larger the bulb and the more leaves are produced, the more flowers you'll have the next season. In general, for every four leaves on the plant you'll get one flower spike the next season. In the fall when cold weather arrives, bring the plant in before frost, cut the foliage off about an inch (2½ cm) above the neck of the bulb, and let the pot sit in a dry spot at room temperature. Wait until the new bud starts to poke above the neck of the bulb, and then you can start this process all over again.

COMPARING DUTCH AND SOUTH AFRICAN VARIETIES OF AMARYLLIS

Amaryllis varieties from both Holland and from the Southern Hemisphere (South Africa and Peru) are stunning. Most bulb suppliers have both types. The main differences between the two are where they're grown and how long they take to flower. The ones from the Southern Hemisphere bloom in four to six weeks after they're planted. The Dutch varieties are from the Netherlands and take 8 to 12 weeks to flower after planted. So, if you live in the United States or Canada and want flowers around Christmas time, be sure to choose the ones from the Southern Hemisphere. They're generally available in mid-October so will flower around Christmas. The Dutch ones will bloom later so you can extend your season of enjoying them.

FIGURE 8-10: Amaryllis provide a show-stopping display and are practically fail-safe to grow and flower.

Photo courtesy of Gardener's Supply Company

How to plant bulbs

Planting bulbs is simple. But before you start, be sure the chosen spot has good, well-draining soil. Bulbs rot in soggy ground and struggle in sandy soil; the addition of some organic matter eases these problems considerably. Follow these planting steps for the best results:

Step 1: Dig the hole

If you're planting only a few bulbs or you're spot-planting (tucking bulbs in among other plants in a mixed bed), use a trowel. Various bulb planters are on the market, but frankly, I don't find them very useful unless the soil is loose. If you're planting lots of bulbs, break out the shovel and make a trench.

REMEMBER

Not all bulbs are the same size, so not all bulbs should be planted the same depth. The general rule is two to three times as deep as the bulb's height. This guideline varies a bit based on your soil type. In sandier soils, you can plant a little deeper; in heavy clay soils, a little shallower. If you forget how deep to plant your bulbs, consult the supplier's label or catalog. Too shallow, and your bulbs may poke their heads above the soil surface too early and get damaged by wintry weather; too deep, and they'll take longer to emerge.

Roots grow out of the bottom of the bulb, so the quality of the soil underneath it is more important than what you pack the hole with. If you're amending the soil with organic material like compost or sphagnum moss (see Chapter 4), dig somewhat deeper-than-recommended holes so you can accommodate this addition.

Distance apart varies with the type of bulb and the sort of display you have in mind. If you crowd the bulbs underground, the eventual show may suffer. Certainly, don't let the bulbs touch one another. The general rule is *at least three bulb-widths apart "on center"* (from the center of one bulb to the center of the next). But experience can tell you what the bulbs you've chosen tolerate and how dense you like your displays.

Step 2: Add a fertilizer

Use a fertilizer that has a higher phosphorus number, such as a 5-10-5 fertilizer (see Chapter 4 for info on fertilizer grades). Phosphorus (the *P* in the N-P-K on fertilizer labels) is important for the root growth as well as flower production. Just sprinkle the fertilizer in the bottom of the hole and scratch it in so it mixes with the soil a bit. (For more on choosing and using fertilizer, see "Fertilizing your bulbs," later in this chapter.)

TIP

If the ground is bone dry, water a day or so before planting so the ground is damp but not muddy when you're planting the bulbs. If you want to wait to fertilize, you can scratch the fertilizer into the surface of the soil in the spring as the bulbs are growing.

Step 3: Put in the bulb

You want the *nose,* or growing point, to point up and the roots, or basal plate from which they'll grow, to point down (refer to Figure 8-11). (If you can't tell, plant the bulb on its side — the plant will figure it out in due course! Botanists call this nifty skill *gravitropism.*) Make sure the bottom of the bulb is in contact with soil; if you leave an air pocket, the roots can dry out and the bulb won't grow or won't grow very well.

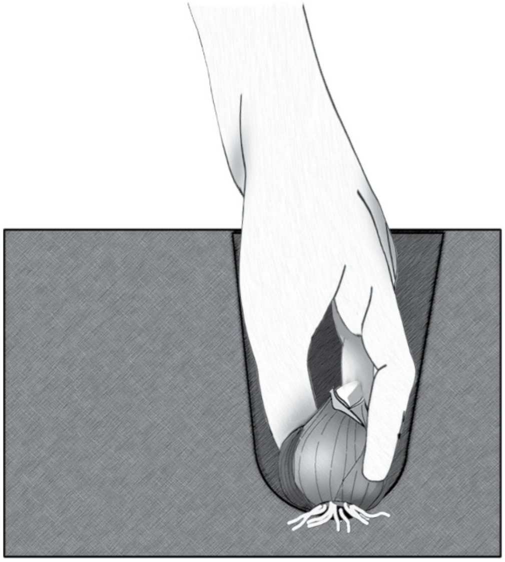

FIGURE 8-11: Securely place the bulb's basal plate against the bottom of the hole.

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TIP

If you can't figure out which side of the bulb is pointed, plant it on its side. Don't worry about not being able to figure out which end is up because the bulbs know which way to grow and will find their way up with or without your help.

Step 4: Backfill and water

As you scoop soil back into the hole, firmly press it in place to prevent air pockets. Water well (some settling will occur) and then add a bit more soil as needed.

TIP

Indicate where you've planted your bulbs so you don't plant other flowers in the same place. Mark the locations with permanent non-rusting, non-rotting labels like those made of zinc or copper.

Taking Care of Bulbs

Because bulbs come as a package of life — that is, with the embryonic plant and flower within, plus stored food to fuel the growth — they demand little from you, the gardener. With a little tender, loving care — not a lot — they can do their thing and be wonderfully reliable.

Watering your bulbs

Just like grocery-store onions, bulbs rot with too much moisture. And yet, they need water to generate roots and get growing. But don't fret — there's no mystery or careful balancing act. Just grow bulbs in well-drained soil; they can use the water they need, and any excess moisture should drain away.

Fall-planted, spring-flowering bulbs have it easy if you live where fall rains water them in and spring rains wake them up. (Of course, in an uncharacteristic dry spell, you can provide supplemental water.) Summer- and fall-bloomers appreciate water most when they're beginning to emerge and again when they open their flower buds. Water at these times only if the soil is dry.

Fertilizing bulbs

Although newly planted bulbs have all the stored foods they need to perform the following spring, annual fertilizing can help keep this show going year after year. Flowering causes bulbs to deplete their reserves of nutrients, and if you want them to bloom next year and/or produce offsets, fertilizing post-bloom is advisable.

A general-purpose fertilizer works fine for bulbs. A higher phosphorus content is often recommended simply because it inspires root growth as well as flower production. So, go ahead and use the 5-10-5 or something close to this ratio.

People often recommend bone meal for bulbs, with its approximate formulation of 2.5-24-0. This natural material tends to be very slow to release it nutrients, so some gardeners prefer using *super phosphate* instead; this material is rock phosphate that has been treated with sulfuric acid to make it more soluble. It's 20 percent phosphorous (0-20-0).

Some people debate over where to place the fertilizer. In the hole? On the soil surface (top-dressing)? The case for adding plant food to the planting hole is that it's right at the roots, where plants need it (some people are concerned that direct contact with fertilizer will burn a bulb or its roots, but not all bulbs are so fragile). The case for soil-surface feeding is that the nutrition can filter into the growing area more gradually.

What to do? Try whichever way is more convenient for you, and judge the results. You can always switch methods.

You need to fertilize only once, and you have three opportunities to do so:

- **At planting time (usually in the fall):** I describe this option in the previous "How to plant bulbs" section. Fertilizing at planting time gets the bulbs off to a good start.

- **As growth starts, usually in early spring:** This fertilizing improves the current season's display. Individual plants will be more robust, with brighter, longer-lasting blooms.
- **Post-bloom:** While the foliage dies down naturally, this little boost sends food down to the bulb to fuel next year's show.

The standard application rate for fertilizer is a tablespoon or small handful per square foot, but read the label on the fertilizer package for exact directions. Bulb merchants often sell bulb-specific fertilizer with names like "Bulb Booster," but a general-purpose garden fertilizer like a 5-10-5 (see Chapter 4 for more detail on fertilizers and fertilizing) works fine. Always apply fertilizer to damp ground, and water it in afterward if there is no rain, so it penetrates the soil and gets to the root zone.

Mulching

Mulch helps keep down weeds, can add organic matter to the soil, retains moisture, and stabilizes the soil temperatures. Stable soil temperatures are important so the bulbs don't sprout too soon and risk freezing damage from a late spring cold snap.

Shredded leaves, compost, or bark chips are all fine choices for mulch. Sprinkle it lightly around your bulbs just after planting them or when they're up and growing. And add some more mulch after the show is completely over.

Caring for fading leaves

After bulbs bloom, the foliage tends to linger. Eventually it starts to yellow, then brown, and finally gives up the ghost — a process that can take many weeks. This stage is not a pretty sight, but don't interfere! The plant is busy sending food down to the bulb to fuel next year's show. Cutting off the leaves before they naturally die back diminishes next year's display.

Some gardeners bend over the offending, fading leaves and cinch them with a rubber band or piece of string. Some even braid them! Both of these tacks don't really solve the ugliness problem, and they thwart the refueling process. It also looks odd, so don't waste your time.

If you just can't stand to watch your bulb foliage die down, you have two choices:

- **Tear out the entire bulb — ugly, fading leaves and all.** Plant new bulbs at the appropriate time.

  Don’t use this method with bulbs like autumn crocus or naked ladies *(Amaryllis belladonna),* which don’t send up their leaves at the same time as their flowers.
- **Hide or at least distract from the process.** Plant billowing perennials in the area (see Chapter 7), or tuck in some annuals (Chapter 6). Here are some recommended companions and cover-ups:
  - Basket-of-gold *(Aurinia)*
  - Bleeding heart *(Dicentra)*
  - Daylilies *(Hemerocallis)*
  - False rockcress *(Aubrieta)*
  - Forget-me-not *(Myosotis)*
  - Spurge *(Euphorbia)*
  - Violets or pansies *(Viola)*

Fighting bulb pests

If you were a rodent tunneling around underground and you came across a nice, plump bulb, how could you resist? The main predators of bulbs are mice and voles (not moles, actually — moles are carnivorous, dining on insects and worms and such; mice and voles may use the tunnels of moles). Squirrels and chipmunks are more likely to sniff out the tasty treats above ground and dig up your bulbs, sometimes strewing remnants about your yard. These rascally rodents are enough to make even the most mild-mannered gardener homicidal.

Rodents love tulips and crocuses, but they avoid daffodils, fritillaries, and amaryllis and its relatives (these bulbs are poisonous, and the critters seem to know it). Here are some strategies for keeping your bed of bulbs rodent-free:

- Fill each planting hole with small, sharp gravel.
- Make a cage of ½ inch (1.3 cm) hardware cloth (like the one in Figure 8-12), fill it with soil, plant your bulbs inside it, and then bury it at the correct depth. This seems like a real pain, but it the mice, squirrels, or voles repeatedly wipe out your bulbs, especially crocus, tulips, and lilies, it’s worth the effort.

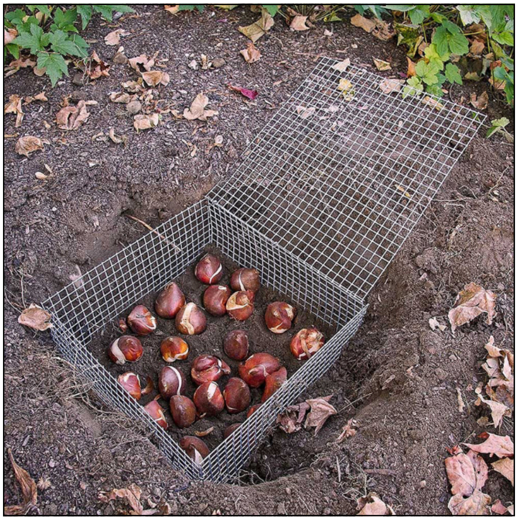

FIGURE 8-12: A hardware cloth cage could save the day against bulb eating varmints.

Photo courtesy of White Flower Farm

- Make a raised bed especially for bulbs. This bed should be about a foot deep. The bottom layer, at least 2 inches (5 cm) thick, should be small, sharp gravel. It also can be lined with ½ inch (1.3 cm) hardware cloth. To accommodate the bulb's roots, at least 6 inches (15 cm) of good soil can go over the gravel. Plant the bulbs and cover with 2 inches (5 cm) of gravel or even sand. Last, lay a thick layer of mulch (up to 6 inches [15cm]) of hay, pine needles, or shredded leaves over everything. Remember to rake off the mulch when spring comes.
- Prior to planting, spray your bulbs with a foul-tasting repellent marketed for this purpose. Three common brands are Mole-Med, Plantskydd, and Ropel. Let the bulbs dry before planting. Castor oil is also a common, safe, and reasonably effect repellent that you can apply to the bulbs and/or the ground they grow in.

IN THIS CHAPTER

- Examining rose types
- Deciding what you want your roses to do
- Purchasing and planting roses
- Giving the plants the care they need

Chapter 9

Coming Up Roses

What can roses do for you? Just about anything (well, anything becoming to a plant). They're long-lived plants, they deliver plentiful and gorgeous color, and you get to pick your own bouquets to enjoy indoors (or give away to your dazzled friends!). And many of them are deliciously, seductively scented.

Of course roses are beautiful — in fact, roses, a traditional symbol of beauty, are arguably the most gorgeous blossoms that exist! They certainly look wonderful in a corsage or vase. There, you can't help but admire their form and notice that they're fairly long-lasting off the bush. But here's a secret gardeners know: There's so much more to roses — different flower forms, different colors, different scents (some are quite fragrant, others are fruity or spicy), and even different plant forms.

All this can be yours — really! This chapter tells you what you need to know about choosing, planting, and caring for roses. There's nothing quite like enjoying the pride and pleasure of your very own!

What Makes a Rose Be a Rose Be a Rose

Officially, roses are shrubs of the genus *Rosa*, but growers weren't completely content with bushes. Roses now come in a huge array of sizes and forms. This unique and splendid variability means that if you like roses, you can display them in all sorts of settings.

Some roses are large standalone bushes, capable of being the main showpiece of a large yard. Some are dense enough to form impenetrable hedges (when planted in a row), a nice way to get a *living fence*. Other types of roses, although still bushy, are compact enough to find a home in a mixed flower bed or to thrive in a container. Some roses even have a spreading form and are low-growing enough to serve as groundcovers on embankments or curb strips. And don't forget the climbers and ramblers — some of these roses can cover your shed or garage if you let them; others naturally remain a manageable size as they drape their loveliness over a simple garden arch.

Ever-popular miniatures range from patio-planter-box or hanging-basket size all the way down to little peewees that you can tuck into small decorative pots, alone or with other plants. Some enthusiasts like to tuck the miniatures right into the ground — not their traditional use, but why not? They certainly add a reliable splash of color in any sunny bed.

The trick is to choose the right rose for the spot you have in mind. The following sections cover some important options for you.

Checking out blooming habits

Back when roses were first introduced into cultivation, they tended to throw a great late-spring or early-summer show. And then it was over. Gardeners didn't see this tendency as a problem. People were so taken with the beauty and fragrance of the rose blossoms that they didn't complain. These early rose varieties were usually full-petaled (full of so many petals that you could rarely see the center of the rose) and richly fragrant.

Many spring bloomers are still in commerce to this day, and they're well worth growing. Spring bloomers are full of splendor and romance, their short period of glory notwithstanding. They're generally called *old garden* or *vintage* roses. Sometimes their French or Italian-sounding name is a giveaway. (For more information on these lovelies, read the upcoming "Species and old garden roses" section.)

Roses that don't just bloom in late spring or early summer and finish are a modern development. (The year 1867 was the benchmark with the introduction of the first hybrid tea rose, 'La France.') Repeat-bloom roses don't actually bloom nonstop; if you observe carefully, you may notice that they cycle in and out of bloom.

Assured blooming cycles, shortened gaps between them, and longer-lasting blossoms are all the result of a long, complex, and varied genetic background and many different and protracted breeding programs, both in America and abroad. All you really need to know is that many modern roses can produce blossoms for you all summer long and often well into fall. How many other flowering shrubs, or even flowering perennials, can claim that?

Looking at hardiness

Don't worry about hardiness! Generally speaking, roses run the gamut of hardiness, and you can find varieties that can grow almost anywhere in the North America, from USDA Hardiness Zones 4 or 5 to 9 or 10. Some roses tolerate colder, Northern winters; others prosper in mild climates. Just as with any important plant purchase, you should make sure that the rose of your choice is considered hardy in your area (see Chapter 3 for info on plant hardiness zones).

Also, just as with any other important plant purchase, you may be willing and able to pamper a marginally hardy rose plant. Winter mulching is important, especially with *grafted roses* (roses with cold-hardy roots and a less-tough rose variety on top). Head to the section, "Maximizing winter hardiness," later in this chapter for details about when and how to do this care, and what material to use.

Identifying the various rose types

Look closely at the plant tag or catalog description to find out what type, or class, of rose you're considering. Among the numerous, widely used, and generally recognized types, you can find genuine differences. Know what you want and what you're buying! Read on to see your options.

Hybrid teas

Because hybrid tea roses are so widely grown, they're perhaps the first type of rose that comes to mind when you think *rose*. They're surely the queens of the rose world, with their handsome growth habit and elegant flowers. Hybrid teas come in medium-to-tall bushes and usually have a distinctive vase-shaped profile. Elegant pointed buds precede the big, gorgeous, refined-looking flowers that are usually one to a stem. These flowers are often bred with long cutting stems, so hybrid teas are great for bouquets (see the section, "Using roses as cut flowers," for more information). They bloom continuously throughout the growing season.

Floribundas

Shorter and more compact than the ubiquitous hybrid teas, floribundas are — as you may guess from their name — cluster-bloomers. This quality makes them excellent landscaping roses, in groups with one another or as part of mixed flowerbeds. They're also a better choice for smaller spaces and smaller gardens. Floribundas were bred to be hardier than hybrid teas, so they're a better choice for colder climates, where they don't need the pampering that hybrid teas do.

Floribundas also remain in bloom all summer. In any given cluster, you may observe some in bud, some partially open, and some fully open blossoms. This staggering keeps the show going and is also a nice quality in a homegrown bouquet.

Grandifloras

A grandiflora is a big, upright-growing plant with large blossoms. The flowers appear in clusters, as with a floribunda. A cross between hybrid teas and floribundas, grandifloras are hardier than the teas but not as cold-tolerant as floribundas. These plants bloom all summer. Some experts consider them a subclass of the hybrid tea.

Polyanthas

Polyanthas are similar to floribundas but are technically older and less intensely bred. Polyanthas have a nice, compact, shrubby habit — they're a bit informal but charming. Their smaller flowers, which the plants produce in profusion, remain in force all summer long.

Species and old garden roses

Species are, as you may guess, old, historic roses that survive to this day because some enthusiasts deemed them worth preserving and perpetuating. They're the wild forbears of modern roses, and they exhibit admirable vigor, natural toughness, and casual, exuberant beauty. Yes, they tend to bloom only in spring. You may have a niche for these classics, or you may leave them to the fanatics. The best way to decide is to view one for yourself.

Old garden roses are historical roses that generally bloom only once a season, in late spring or early summer for a few glorious weeks. Sometimes referred to as *vintage, heirloom,* or *antique roses,* some old garden roses are species, which means they grow in gardens today the same as they grew in nature; others are hybrids of the species, or newer human-designed varieties. You can assume that the historical roses that didn't survive were either not very tough or were replaced by improved versions; as you may also guess, a number of excellent vintage roses have contributed their qualities to other sorts of worthy rose hybrids.

So grow these survivors with confidence. The best selections are at specialty nurseries.

You should know that this group includes numerous subcategories: albas, Bourbons, centifolias (cabbage roses), China, damasks, gallicas, hybrid musks, hybrid perpetuals, moss, noisettes, Portland, Scotch, and tea roses. Whew! How can you sort through this bounty? My advice is to read the individual descriptions or visit the nursery and then pick the one that captures your heart, no matter what it's called.

David Austin or English roses

Starting in 1963, British nurseryman David Austin electrified the rose world by successfully combining beautiful, full-petaled, richly fragrant old garden roses with modern ones to produce attractive, romantic plants. Many of these plants also feature improved disease resistance and a much longer blooming period. Today other breeders have waded in and contributed, so the more proper term is *English roses.*

Shrub or hedge roses

Shrub or *hedge roses* turns out to be a catch-all term for lots of roses. To warrant the title, the rose should have a big, broad, shrubby habit, good weather-resilience (be cold-hardy but also able to tolerate hot, humid summers), disease resistance, and less-refined but often quite pretty and frequently fragrant flowers. Shrub roses are bred to be covered with blooms throughout the summer months.

But wait — there's more. This group has subgroups that are distinctively different from one another. Here are the more widely available ones:

- **Canadian or Explorer roses:** Yes, these roses are bred in Canada and are thus able to survive the rigors of a Northern winter (most are rated cold-hardy to Zone 4, some even to Zone 3). They're proudly named after famous Canadian explorers.
- **Buck roses:** The late Dr. Griffith Buck, a horticulture professor at Iowa State University in Ames, succeeded in selecting and developing attractive shrub roses that are genuinely low-maintenance and able to tolerate the Midwest's notoriously cold winters, fickle springs, and blazing hot and humid summers.
- **Rugosa roses:** Originally hailing from Asia, these coarse-leaved, extremely thorny bushes are now a common sight along the Eastern seaboard — so much so that people mistakenly think these species roses are native, even to the point of calling them *beach roses.* Their flowers tend to be single (with just a few petals and blossoms that open rather flat) but come in bright shades of pink, red, maroon, and white. And best of all, they're intensely fragrant, with a scent that's undeniably spicy. The hips that follow in fall tend to be big and bright, which makes the bushes look perky and festive until the birds eat all the rose hips.

  Yes, the plant breeders have waded in, mainly to improve the flowers (double rugosas, for instance, sport more petals per flower). Rugosas make excellent, low-care hedges.

- **Meidiland roses:** Weather-tough and disease-resistant, these French-bred roses tend to form a relatively compact plant no more than 4 feet high and wide, so less pruning is necessary. The flowers are pretty and sometimes scented.
- **Simplicity hedge roses:** The rose-breeding giant Jackson & Perkins bred these roses, and the plants are without peer if you want a casual-looking shrub with plentiful, informal flowers. Overall, these plants are tough and handsome. The original Simplicity hedge rose is pink, though white, crimson, yellow, and purple are also available.

Miniatures

Miniatures sport small leaves, small buds, and small flowers — all in scale with one another. These little rosebushes are cute and perky, ideal for pots but also sometimes a nice colorful touch in a mixed flowerbed or planted in a ribbon as an edging. Their diminutive size belies the fact that they're very tough and are often more winter-hardy than their larger counterparts.

Tree roses or standards

Tree roses are a grand sight flanking an entryway or walkway or growing by a swimming pool, alongside a deck, or in any formal garden area. Gardeners often display them in large pots, but you can certainly plant them in the ground. They're not winter-hardy, however, so protect them if you have cold or freezing winters (read the section, "Maximizing winter hardiness," later in this chapter).

But what are tree roses, exactly? Basically, they're a rose grafted on to a bare stem — a two-part plant (or a three-part, if that bare stem has been grafted onto a special rootstock). Basically, the grafting simply lets you get many familiar roses — a 'Peace' or 'Mister Lincoln,' for instance — in tree form. Such details aren't ultimately that important for you, the consumer. Just choose a plant that looks well-done and appears healthy.

Climbers or ramblers

Long, pliable *canes* (stems) are the main characteristic of the climbers and ramblers; this trait allows you to train these roses on a support such as a tree, trellis, fence, or archway. Although older rambling roses bloom just once every spring, modern ones can go all summer.

These plants aren't technically vines because they have no way to attach themselves well to a support. They need your help and guidance — use judiciously placed, nonbonding ties (strips of cloth work). For advice on encouraging climbing growth, see the section, "Roses as vines," later in this chapter.

Groundcover or landscape roses

In recent years, rose breeders have been working on groundcover and landscape roses (the 'Flower Carpet' and 'Knockout' series are the most widely available). These plants are just lower-growing roses that tend to sprawl outwards rather than upwards. With dense growth, some thorniness, and scads of pretty flowers all summer, they're an outstanding landscaping solution if you love roses and have a broad, open strip in need of coverage — a hill or embankment, say, or a sunny side yard, or an area you want to route foot traffic around rather than through.

GRAFTED VERSUS OWN-ROOT ROSES

When you go rose-shopping, you may notice that roses are labeled as grafted or own-root roses. Lately, the growing trend goes toward more own-root roses. What's this all about?

- **Grafted rose:** A *grafted rose* is actually two plants: the stems (or *canes*) of one plant and the root system of another. In grafting, horticulturists play around with a sort of Frankenstein assembly — they take a piece of one plant, attach it to a closely related plant, and encourage the parts to grow together. Ideally, a grafted rose is the combination of a weather-tough, vigorous rootstock and a possibly more frail but desirable and attractive *scion,* or top.

  A grafted rose plant has a telltale knob, bulge, or bump low down on the stem right above the root system. Certain rootstocks have been used to confer vigor, uniformity, disease resistance, or adaptability to certain types of soil. However, the rootstock may generate suckers (errant canes) — or leaves and even flowers — that look nothing like the main plant; a bitter or snowless winter can kill the top and leave you with only the rootstock rose (in which case, you may as well rip out the entire plant and discard it).

- **Own-root rose**: An *own-root rose,* on the other hand, is entirely one plant and one plant only. It's raised from a cutting, and it grows on its own roots. You can recognize these plants because they bear no sign of a graft at the point where the canes meet the roots; the seller also proudly labels the plant as *own root.* If you prune it low or winter damages it, it'll resprout true to type — that is, as itself, as expected. Winter damage, although unfortunate, is not a disaster. And you don't get suckers. Own-root roses are often (but not always) longer-lived than their grafted counterparts. On the other hand, plant vigor and productivity (the amount of foliage and flowers) varies. Some own-root hybrid tea roses, in particular, are not as tough or uniform as their grafted counterparts.

How do you decide? If you have cold, harsh winters, you may be better off with own-root roses. Elsewhere, you can grow either type and judge the results for yourself, which vary according to the rose variety.

Deciding Where to Put Your Roses

Roses have become more sociable! Although some lovers of these special flowers enjoy planting them in beds by themselves (so gardeners can give the plants special care and make them more accessible for cutting), other folks have decided to let them join company with the other garden players — herbaceous perennials, bulbs, and shrubs. The choice is yours. The following sections discuss some ins and outs about the different places you can plant roses in your garden.

Planning your beds and borders

Beds and borders are the most popular and beautiful way to show off your roses. When you invite a rose or several roses into your garden, don't just plunk the roses into the ground at random. Instead, plan ahead to create splendid beds that incorporate roses into your landscape or mixed flower beds. Your plan can be as elaborate as the one shown in Figure 9-1, or as simple as creating a small bed of three or four types of roses as shown in Figure 9-2.

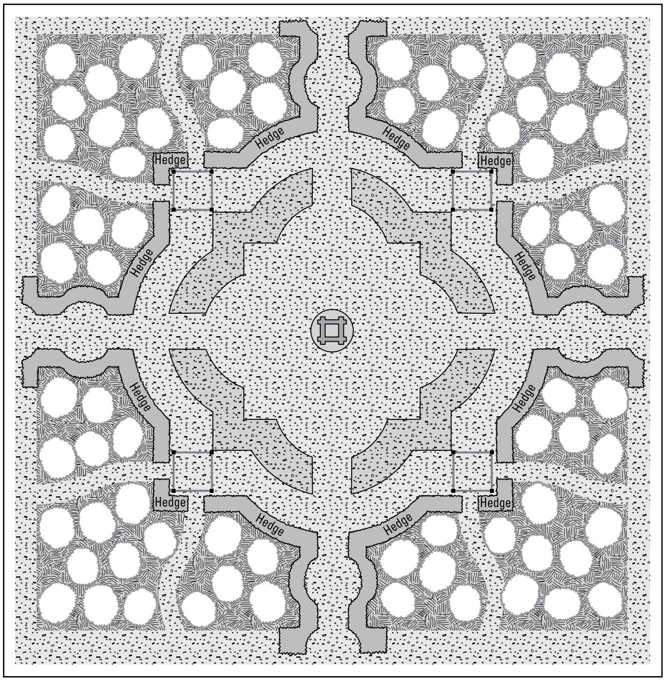

FIGURE 9-1: A large, classic plan for a very elaborate rose garden. The blank sections indicate where each rose bush should be planted.

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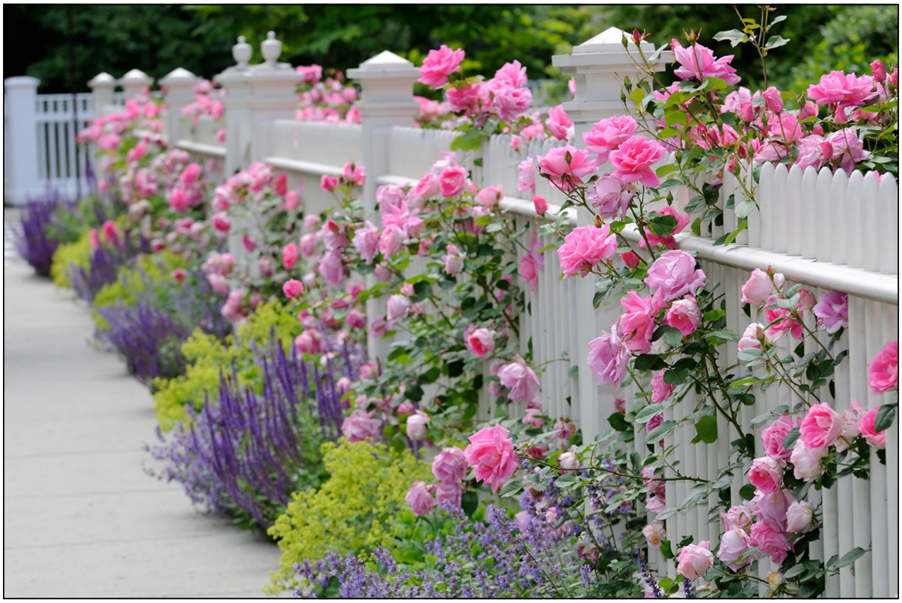

FIGURE 9-2: Roses can be integrated nicely with other annuals and perennials.

© *Shutterstock*

Apply a few of these tricks and techniques; the results can be quite splendid:

- **Let the sun shine in.** Roses love sun — at least six hours a day. Their foliage is denser and healthier in full sun and flowers are more plentiful. So the appointed spot can't be shaded by nearby shrubs, a fence, or the house. (Or if it is, hopefully the shade is early morning or late-day.)
- **Pick the site — it should have ample elbow room so the plant can grow freely and healthily.** The rosebush shouldn't block or be blocked by other plants. It needs space so that air can move freely around the rose plant. Location is a fairly important garden decision!
- **Match the rose to the spot.** Consider mature height and width (whoever sells the plant to you can provide this info if it's not on the tag). You're going to love and cherish this plant, so it's sure to reach its full potential in, say, two or three years.
- **Let big plants come first when selecting plant locations.** If your bed or border will have other flowers — perennials and annuals — chances are your rosebush or bushes will be among the larger players. If you're working with a newly cleared area, no problem. Just reserve a corner or the back spot that can accommodate the plant's mature size.

TIP

If the rose is a new addition to an existing display, you may have to coldheartedly remove plants that'll be in the way (transplant them elsewhere in your yard or give them away so you don't feel so guilty).

- **Match your garden.** Use your eyes, nose, and heart. Choose something gorgeous. Pick a color that you like. A rose will be in bloom over a long period, unlike some of your perennials or shrubs, so it needs to be a color you can live with and enjoy over a long period, something that'll go with nearby plants or a hue you can build a display around. For ideas on what kinds of plants go well with roses, see the nearby sidebar in this chapter about letting your roses mingle with other flowers.
- **Consider color.** Roses are red (and pink and yellow and cream and orange and white and purple and so on). Because most roses bloom all summer — and lustily if they're happy and healthy — the blossom color becomes a major contribution to any mixed-flower bed or border. Here are some of my favorite themes:
  - **Romantic pastel:** White, cream, pink, and pale yellow roses
  - **Hot shots:** Red, crimson, maroon, orange, and bicolors of these
  - **Bright lights:** Pure whites and bold yellows

Using roses as groundcovers

Roses may not be the first plant that springs to mind when you're in search of a good groundcover, but if the site is sunny, you can do it! The plants may never be as low as, say, a carpet of vinca, pachysandra, ice plant, ajuga, trailing lantana, or trailing juniper. But low-growing roses, no more than 1 or 2 feet high (30 to 60 cm), can grow just as dense, prevent erosion, hold weeds at bay, and generally fill in a broad area quite nicely.

Unlike traditional groundcover choices (see Chapter 12), your ground-covering rosebushes will be full of colorful flowers for most or all of the summer — an appealing sight! Their thorniness, whether light or thick, can also be an asset. Nobody, not even the cat, will try to walk through!

REMEMBER

Of course, you want to use roses that are either specifically bred for or singled out as groundcovers. This has become popular group so new ones are being introduced every year but here are some good ones to look for:

- **'Drift'** series (apricot, coral, white, lemon)
- **'Electric Blanket'** (coral)

- **'Flower Carpet'** (various colors)
- **'Happy Chappy'** (pink, orange, yellow)
- **'Happy Trails'** (yellow)
- **'Meidiland Fire'** (red)
- **'Party Dream'** (pink)
- **'Petal Pushers'** (pink)
- **'Red Ribbons'** (red)
- **'Sweet Vigorosa'** (deep bluish pink with a white eye)

Alternatively, certain enterprising gardeners have found that some climbing and rambling roses can easily be induced to sprawl along the ground. You just have to anchor, or peg down, the canes at regular intervals so they go where you want them to go. (Foot-long pieces of sturdy wire, such as a piece of a coat hanger, may be bent into a U-shape and pressed into the ground over a stem — this technique works great! Do this anchoring in winter or early spring, though, when seeing what you're doing is easier.) Try one of the following types:

- **'Dortmund'** (red)
- **'New Dawn'** (pink)
- **'Lady Banks'** (yellow)

Screening with roses

Why not have a living fence of roses? Wisely chosen and properly spaced, a screen of rosebushes can do everything you ask: block unsightly views (of a street, neighbor's yard, trashcan, or storage area); diminish noise; keep out intruders (hooray for thorns!); keep pets or children in (again, hooray for thorns!); or define a boundary. You get all this, plus the look is more informal, more colorful, and far prettier than any wooden or metal fence could hope to be!

Roses suitable for this screening job are easy to find. Recommended screen roses include Simplicity hedge roses (many colors), 'Bonica' (pink and white), 'Knock Out' (red, hot pink), any rugosa rose, and any of the very hardy 'Morden' shrub roses. If they're not specifically touted as *screen roses,* here's what to look for:

- **Dense growth habit:** So they fill in and crowd out weeds
- **Thorniness:** For safety and security

- **Flowers that appear all over the entire plant, not just at the top:** For a uniform show (fragrance is also a plus, if you plan to be nearby to enjoy it; otherwise, it's optional)
- **Low care requirements:** Because a screen or hedge isn't something you want to pamper or fuss over; you want disease- and pest-resistance and minimal pruning

Using roses as vines

Climbing roses are a great choice where you want extra color or lack space. If your garden is horizontally challenged, go up! Although you can choose from many flowering vines in the world — clematis, trumpet creeper, and honeysuckle, to name but a few — there's nothing quite like a rose to bring real lushness and bountiful color. If you choose a modern climber, the color can last most or all of the summer. Choosing a climber with fragrance can double your pleasure.

A trellis or arbor is the traditional choice as a vine support (and certainly you want a strong one — flimsy plastic is not equal to the job); use a support that's out in the open or against a wall, fence, or porch. For more information on vines and supports, flip to Chapter 14. You have other appealing options as well:

- A wire or wooden arch, standing alone or as a continuation of your garden fence
- A standalone pillar or post
- A teepee
- A pergola (arbor)
- The side of the porch
- An open-design fence
- A dead tree that's too much trouble to dig out
- A gazebo

Buying the Best Roses

At garden centers, in large retail stores, or even sometimes arrayed out in front of your grocery store, you've probably seen potted roses for sale. They may be in a plastic pot, a sturdy cardboard box, or even a plastic poly-bag. These forms certainly aren't the only ways to get roses: You can also buy them bareroot, as I describe in a later section, though with bareroot roses, you don't the instant gratification of having a rosebud almost ready to bloom as you can often get with a potted plant.

REMEMBER

Where you get your rose may be a more important consideration than the form the plant comes in. Potted or bareroot, the rose at the nursery is a good bet because you can personally inspect it for quality and health. You can also get the staff to help you select and evaluate the plants you want.

Getting a potted rose

Plastic pot, cardboard box, or plastic poly-bag — what's common to all these editions is that the plants are showing growth on top and their roots are in soil mix below. Here are the real advantages of getting a potted rose:

- You can see and inspect the plant before deciding to buy it.
- If you want, you can take it right home and plant it that day.

However, buying potted roses has disadvantages, too. Depending on the venue, the plant may not be well-cared for (it may be getting too much hot sun and not enough water, for instance). It could also be root-bound, especially if it's been in the same pot too long.

REMEMBER

Here are some things to check when picking out a potted rose:

- **Labels:** Is it labeled with its name and planting/care instructions?
- **Flowers:** Is it in bloom? (***Note:*** Traveling home, and the trauma of transplanting, may cause a rose plant to jettison its flowers; you're better off buying one that's only in bud if you want quick color.)
- **Stems and roots:** Do the stems look plump, green, and healthy? Are the roots plump, white, and healthy? (To check roots, probe them with your finger or temporarily pop the entire plant out of the pot.)
- **Signs of disease and pests:** Are there signs of insect pests or diseases, such as webs or yellowed or black-spotted leaves? (See the section, "War of the roses: Tackling rose pests," later in this chapter for details.)

Purchasing a bareroot rose

Bareroot roses (see Figure 9-3) come partially or fully bagged or boxed. When you look inside, you see plain stems and roots, perhaps along with some wood shavings or other slightly moisture-retaining material. Fear not! A bareroot plant is a dormant plant, and this appearance is normal.

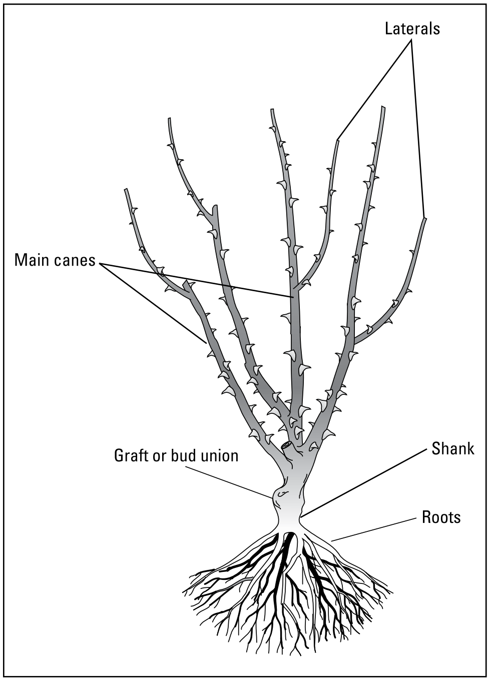

FIGURE 9-3: A bareroot rose plant, showing the various parts.

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Buying roses in this form gives you several advantages. Because bareroot plants are dormant, you get to put them in the ground earlier (in mid-spring, as soon as the soil is workable). And because they've never been cramped into a pot, the roots are likely to be in good condition and ready to go into the ground. Bareroot roses also tend to be cheaper than potted ones; cost is a consideration especially when you're putting in a hedge or boundary planting and need to buy many.

The disadvantage to getting bareroot roses is that they may be harder to find (though you can always order them by mail). Also, they aren't going to leaf out and make buds right away; they spend their early days in the ground on root growth.

REMEMBER

Here are some things to check when picking out a bareroot rose:

- **Name and instructions:** Is it labeled with its name and planting/care instructions?

- **Plant quality rating:** Is it labeled with its grade? The grade tells you about the number of canes the plant has and their thickness (see the "Exposing the truth about bareroot rose grades" sidebar).
- **Cane condition:** The canes should be thick, succulent, and green but not quite leafing out. Are the stems viable? They should be flexible and crunchy, not brown or black (if only a few are discolored, just snip them off).

TIP

Even though bareroot roses are dormant, you still must protect their roots. Remove all the packing material and rehydrate your rose plant by soaking it for 12 hours or so in a bucket of water. Some folks have found it helps the plant to get off to a good start by adding a transplant solution that contains B1 to the water.

If you aren't able to pre-soak the bareroot roses and can't plant them immediately upon receiving them, place them in a shallow trench and cover the roots with dirt.

Don't buy ones that have shriveled or dried canes. When you're ready to go, refer to the section, "Planting bareroot roses," later in this chapter.

If you buy through mail-order, the plant will be bareroot because dormant plants are safer to ship (and because this form is lightweight compared to a potted plant). You have to shop via a colorful printed or online catalog, place an order, and wait for delivery, but the selection is likely to be far broader than what you find at any local nursery. Mail-order is the way to go if you desire a specific rose, something special or rare.

EXPOSING THE TRUTH ABOUT BAREROOT ROSE GRADES

A plant is rated on the number and thickness of its canes (stems); the American Association of Nurserymen sets these standards, and all reputable rose suppliers adhere to them. Here's how they compare:

- **Grade No. 1:** The best bareroot rose; bigger, with more numerous and thicker canes. It should have at least three large canes.
- **Grade No. 1½:** A midway rating, for a rose that's not as robust as a 1 but still has more and thicker canes than a 2.
- **Grade No. 2:** The bargain rose — this lowest rating indicates a smaller, younger plant; it's still worth growing, but it'll take longer to reach maturity.

Worried about arrival? Don’t be. Mail-order nurseries have sophisticated weather watch programs, and the companies don’t ship until conditions are safe. After all, suppliers want you to be a happy customer.

Planting Your Roses

Deciding when and where to plant your roses is easy: A sunny spot is key, because roses adore sunlight. A full day, or at least six hours of sunlight a day, is best for roses. And unless you live in a really mild climate, you need to plant your roses at the beginning of the growing season. High summer is too stressful, and late fall can be too late, depending on where you live. You can plant your roses six to eight weeks before early frosts. The ground should be *workable* — that is, thawed and warmed up, and not soggy. And of course, you probably don’t want to plant roses too close to your water faucet or anything else you use regularly, unless you don’t mind dodging thorns.

Because bareroot roses are dormant plants, they can go into the ground in late winter or early spring. They should make a slower and better-paced transition into life in your garden as the season ramps up.

Plant a potted rose early in the growing season (late spring or early summer) — about the time you generally find them for sale. If your climate is cold, wait until after the last frost. But don’t wait too long, simply because hot summer weather stresses a freshly transplanted plant.

Good soil is also very important. It should be rich in organic matter and drain well. If it isn’t, import some good loam (rich, crumbly soil) and compost, or at least mix the existing soil half-and-half with premium soil. (See Chapter 4 for garden preparation.)

How to plant roses is a bit more complicated than when and where, but here I give you the basics.

Putting containerized roses in the ground

When planting roses that come in containers, your first order of business is preparing the hole:

1. **Eyeball the pot the rose came in and dig a hole a bit wider and deeper.**

   You can set the pot in, plant and all, to check yourself.

2. **Loosen the soil on the sides and in the bottom of the hole, using your fingers or a trowel.**

   This way, the roots can head outward and downward more easily when they're ready.

Then prepare the plant:

1. **Water the plant well — until liquid runs out the bottom of the pot — before planting.**
2. **Groom the top half of the plant.**

   Clip off damaged stems, flowers, and buds. Leave on as much good foliage as you can. You can cut down to the highest five- or seven-leaflet leaf group. Cut to an outward-facing set of leaves to encourage new growth away from the center of the plant.
3. **Run a butter knife, ruler, or other similar flat object all the way around the inside edge of the pot to loosen the plant.**

   Squeezing the container sometimes helps. Gently pop it out.

And here's how to plant:

1. **Rake your fingers up and down along the rootball to loosen the soil and roots.**

   Don't fret if a few roots break off.
2. **If the rose is really root-bound, take a moment to help it further.**

   Score the sides of the dense rootball with a sharp knife, up and down, in two or three places. Don't make a deep cut — just ½ an inch in is fine. This step stimulates new root growth.
3. **Holding the plant by the rootball (not the top growth), set it into the prepared hole, and backfill good soil around it.**
4. **Make a basin of soil or mulch around the plant when you're done; then water.**

   The basin should be about 12 to 18 inches in diameter so the water that it collects soaks in directly over the root zone of the rose. This basin makes for easier watering (which you should do right now — give it a good soaking). If the plant settles too low in the hole after the watering, wiggle it back up.
5. **For a grafted plant, mound soil over the bud union to serve as insulation to protect this vulnerable portion of the rosebush.**

Planting bareroot roses

If you're ready to plant, you begin, as usual, with digging (if you can't plant right away, see the section, "Purchasing a bareroot rose," earlier in this chapter, for info on how to keep the roots viable). When digging the hole for bareroot roses, you have to accommodate roots that are currently open to the air. Here's how to prepare the hole for bareroot roses:

1. **Dig at least a foot deep and perhaps a little wider so you can accommodate the rose's roots without cramping, pushing, or bending them.**
2. **Loosen the soil on the sides and in the bottom of the hole, using your fingers or a trowel.**

   This way, the roots can head outward and downward more easily when they're ready.
3. **Mound up a cone of soil in the middle on which to rest the plant.**

   This method is much easier than trying to sift soil back in around the roots as you go.

Bareroot roses are a little unique because you especially want to encourage new growth from the dormant plant. Here's how to prepare the plant:

1. **Slide it out of its protective sleeve, pick off any packing material, and groom the plant.**

   Cut off any damaged, black, or rotten stems or roots (see the upcoming "Grooming" section for details).
2. **Shorten all the canes to about 8 inches long.**

   This step reduces stress on the plant when it goes into the ground. Don't worry — it'll surge into growth pretty fast! Make each cut at a 45-degree angle to an outside *eye* (the swollen bump on the stem) to direct new growth outward.
3. **Shorten the roots with a little 1-inch haircut.**

   Cut off an inch to stimulate new growth.
4. **Rehydrate the plant.**

   Stick the roots in a bucket of lukewarm water for a few hours before planting to help it plump up.

Here's how to plant:

1. **Hold the plant in one hand atop the center mound and spread the roots out over it.**
2. **Backfill good soil in and around the plant, pressing down lightly as you go to eliminate air pockets.**
3. **Make a 12- to 18-inch basin of soil or mulch around the plant when you're done.**

   This step makes watering easier. Give the plant a good soaking! If it settles too low in the hole after the watering, wiggle the plant back up.

Taking Care of Your Roses

Roses have a reputation for being difficult to care for, but don't be intimidated. Roses are actually quite middle-of-the-road, horticulturally, in terms of their needs. This section gives you the basics, but realize that if you forget or muff something, the plants are surprisingly forgiving. Just get back on track.

Watering

Roses like and need water. The general rule is to make sure roses get about 2 inches a week. Like so many other garden plants, deep soakings are much better than frequent, shallow waterings. Set the hose at the foot of the rose (hopefully, you created a nice basin when you planted it — see the preceding planting sections) and let water trickle in. Or if you have a big bed of roses or roses and companions, use a soaker hose or install an in-ground system (Chapter 5 can fill you in on watering tools). Drip watering kits that are designed for roses are available and are easy to install. This emitter (see Figure 9-4) provides ample water to the rose bush without getting the foliage wet, and thus help prevents foliar diseases. All these methods are good because the water gets right to the roots. You avoid waste and don't splash water on the foliage (as a sprinkler does), which invites fungal diseases.

Fertilizing

Unless your soil is fabulously fertile, some supplemental fertilizer is very nice for your roses. It inspires robust growth and more flowers. Also, a well-nourished plant is healthier and is thus less likely to succumb to stress, disease, or insect attacks.

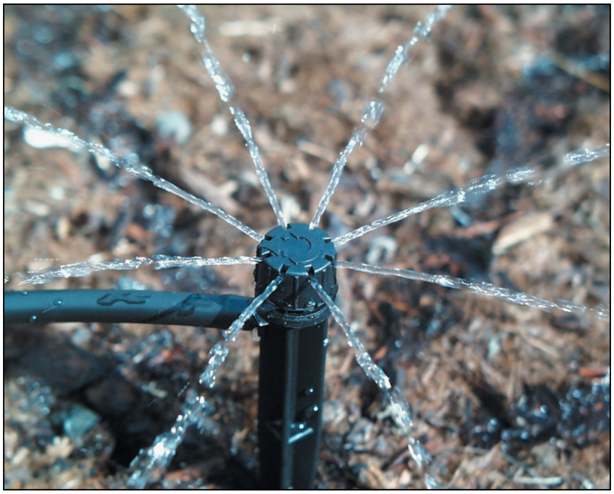

FIGURE 9-4: Drip emitters are ideal for watering roses.

Photo courtesy of `www.dripworks.com`

Use an all-purpose garden fertilizer, because it has balanced amounts of N (nitrogen), P (phosphorus), and K (potassium). Fertilizers touted especially for roses — such as Rose Food — are fine but not mandatory. Ones that are sold as slow-release fertilizers under brand fertilize the roses for most of the summer from just one dose. See Chapter 4 for more information about types of fertilizers and how to use them.

Always water before applying fertilizer so the plant is plumped up and under no stress. Watering also helps deliver the food more evenly and more gradually. You can also water right after feeding your roses, to help move the nutrients into the root zone faster. Better still, water with a hose-end "deep root" fertilizer attachment.

Foliar (leaf) feeding is another way to supplement your roses' fertilizing program. Use any water soluble fertilizer, mix it up in a tank sprayer or sprinkling can, and apply so that it just drips from the foliage. This form of fertilizing is seldom sufficient for all the nutrient needs of roses, but it's a nice pick-me-up in addition to your regular fertilizing program. Fertilize early enough in the day so the water has time to evaporate — wet leaves can invite fungal disease.

Keeping roses in shape

Cutting off dead or damaged canes, removing spent flowers, and doing some pruning can keep your roses looking sharp. The following sections tell you how to make sure your flowers stay presentable.

Grooming

Using sharp clippers, you can spruce up your rosebushes whenever something unattractive about the plant catches your critical eye. I'm not talking about major shaping cuts here (see the section, "Pruning," later in this chapter), just tidiness. Here's stuff you can cut out any time you see it:

- **Dead wood:** Remove dead canes down to the ground level.
- **Damaged wood:** Cut it back into about 1 inch of healthy wood.
- **Misplaced stems:** Take off stems that are rubbing together (choose one and spare the other), stems that are taking off in the wrong direction, and stems that are trailing on the ground.
- **Suckers:** In a grafted plant, these errant canes emerge from below the graft union (the bulge at the base of the bush). The suckers look different from the rest of the bush — they're often smoother, straighter, and lighter in color. Another clue: They sprout leaves and occasionally mongrel flowers that look nothing like the main bush. Off with their heads! (Well, more precisely, cut them off flush to the ground.) If you have own-root roses, you don't have to worry about this.

Deadheading and tidying up leaves

Deadheading is just a gardening term for cutting or snapping off spent flowers. The plant looks better when you get rid of them. Also, because the goal of all flowering plants is to stop flowering and produce seed (in the case of rosebushes, to make rose hips), deadheading thwarts the process. So the plant is fooled into making more flowers. Deadhead away!

TIP

Whenever you see badly damaged, diseased, or dead leaves, remove them. To be on the safe side, throw them in the trash rather than in the compost pile. Don't allow these fallen, marred leaves to accumulate on the ground at a rose's feet. Otherwise, the leaves may spread disease.

Pruning

Unlike the grooming cuts I describe in the previous "Grooming" section, actual pruning has a timing requirement. Early spring is best. If it's still winter, your overeager cuts may lead to frost damage. Pruning is pretty straightforward. Don't forget your tough leather gloves and maybe a good, thick, long-sleeved shirt:

1. **Remove all nonnegotiable growth.**

   This step means making all the grooming cuts if you haven't attended to them already. Some winters are hard on rosebushes, and so early spring is okay to cut out the parts that'll never recover or come back to life.

2. **Thin the plants.**

   The easiest way to thin is to clip out the crowds of twiggy, thinner growth. That may be sufficient, or it can at least allow to you stand back and assess the plant's density and form better.

3. **Shape.**

   Aim for a balanced-looking plant with evenly distributed canes, with the center of the plant somewhat open.

REMEMBER

Use clean, sharp clippers, and cut at a 45-degree angle. Cut near a *bud eye*, the tiny brownish or reddish bump on the stem (not to be confused with a thorn). Experts advise cutting ¼ inch above a bud eye so the bud eye doesn't dry out. Figure 9-5 shows you a typical bush before and after pruning.

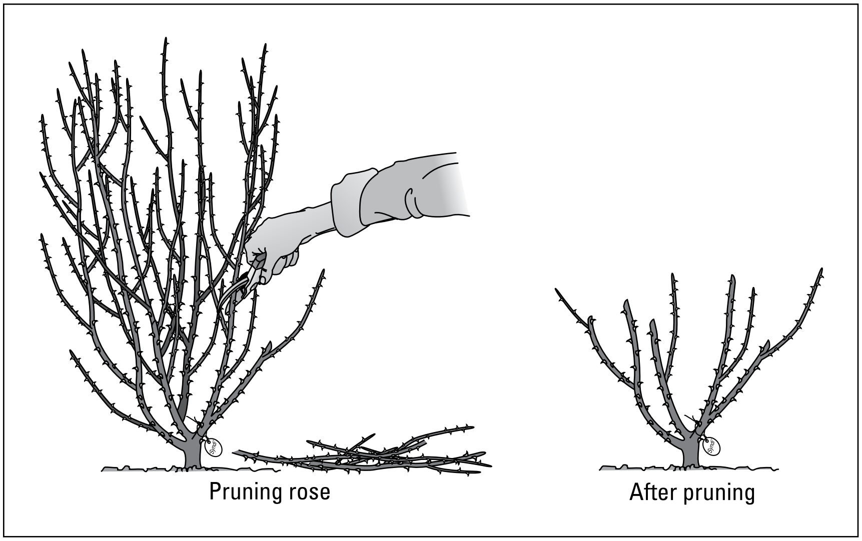

FIGURE 9-5: A rosebush before and after pruning.

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TIP

Beyond the basics of pruning roses, here are specific pruning tips for certain rose types (see the earlier section "Identifying the various rose types" for info on how some of them differ):

- **Hybrid teas:** Prune every early spring. You can cut back almost all the canes, sparing the five or so best ones.
- **Old garden roses:** Do *not* prune in early spring, or you may remove the coming show. Restrict your cuts to cosmetic trimming and shaping right after they finish blooming.

- **Grafted roses:** Don't cut any closer than about 6 inches from the bud union unless you're removing diseased or dead wood.
- **Shrub roses:** You can cut vigorous shoots originating near the ground back by about a third in early spring. Branches coming off shrub roses can be shortened to about 1 foot long. And keep after the twiggy growth, or you may have an impenetrable thicket in a few years.
- **Minis:** Spare the minis — they're so small already. Just shape miniature roses lightly in early spring, and maybe take out old stems every few years to make way for newcomers.
- **Tree roses:** Clip and shape tree roses in early spring and immediately after flowering. Vigorous growth, unchecked, makes for a top-heavy, unwieldy plant.
- **Climbing roses:** Many climbing roses bloom on last year's wood, so prune only what you need for maintaining the shape you want — the process is similar to what you use for old garden or heirloom roses.

Maximizing winter hardiness

A lovely prize of a rosebush really may need and deserve a little tender, loving care heading into winter. You can take your protection cues from experienced gardeners in your neighborhood — ask them what they do and when, as well as what they use. Here's some general advice that should do the trick for most iffy rosebushes in most areas:

- **Give the plant a good soaking in late fall before the ground really freezes so it heads into winter well-hydrated.** Winter winds can dry out the canes.
- **Stop deadheading.** Consider leaving the rose hips on in late fall to induce dormancy (and feed wild birds). Or perhaps someone in your household would like to make rose-hip jelly!
- **Remove all dead leaves in late fall.** Removing the leaves gets rid of disease spores that may be on the leaves; otherwise, these spores can overwinter and start a new disease outbreak the following year.
- **Mulch the plant.** Wait until the ground has frozen, and then gather 2 to 4 inches of shredded leaves, compost, or dirt and mound it up over the base of the plant.

  If your winters are really harsh, you can pile it higher or even wrap a cylinder of chicken wire around the entire plant and dump in soil, which is one of the best insulating materials. You may even want to tie the canes together to help prevent wind damage. Tying the canes together also makes them more compact and easier to protect with mounded soil. Don't uncover the plant until you're sure spring has truly arrived, and then, do so gradually. Scoop off or hose off the mulch over a period of several days or a week.

For a grafted plant, keep soil or mulch mounded over the graft union to protect it. In colder climates (Zone 6 and lower), you should've buried the bud union a few inches under the soil when you first planted the rose.

Many tea roses are grafted to rootstocks that are tenderer than those of some other roses. This sometimes makes them vulnerable to winter kill, so winter protection is especially important for grafted teas, especially in climates in Zone 6 or lower.

WARNING

Avoid those Styrofoam rose cones for winter protection; they can heat the plants too much during January thaw and other unexpected temperature rises.

War of the roses: Tackling rose pests

I'm not going to lie — other creatures as well as humans adore roses. But here's the good news: Many modern roses have been bred for resistance to common rose pests and diseases. More improvements show up every year, so roses are definitely a case of where newer is often better.

Just as with humans, if the rose plant is in good health, it's far less vulnerable. Here's some straight talk about the most common potential foes. Take a look at the list of least-wanted insects:

- **Aphids:** These critters are tiny, pear-shaped sucking insects that especially relish new growth. They excrete honeydew, a sticky, sweet substance that can turn black as sooty mold grows on it. (Ants may appear to eat this but don't harm your rosebush otherwise.) Knock aphids off with a stiff blast from the hose, or spray with insecticidal soap. Never spray when the temperature is above 80 degrees.
- **Japanese beetles:** These metallic-looking copper and green bugs are really creepy, especially when they appear in great numbers. In small infestations, you can bravely pick them off and drown them in soapy water (don't squish them — you'll just releases attractant pheromones!). Japanese beetles are late risers, so if you go out early in the morning, you can shake the sleepy critters into a plastic baggie. If you must use an insecticide, use dry neem oil or a pyrethrin-based control.

- **Thrips:** Thrips are tiny yellow or brown bugs that lead to misshapen leaves, deformed buds, and discolored flowers (with brown spots). They especially love light-colored roses and are most common in early summer. You can spray with insecticidal soap or neem oil.

Roses are also vulnerable to some pretty unpleasant fungi. Check it out:

- **Black spot:** Rose leaves develop small black spots with fringed edges. The fungus that causes black spot is worse in hot, humid weather.

  TIP

  To treat, remove and destroy affected leaves (don't add them to the compost pile). Prune the plant to improve air circulation, and water in the morning. Some sprays that fight this disease include summer oil (a light horticultural oil), neem oil, a baking soda solution, sulfur-based sprays, and strong chemicals — ask at your local garden center.
- **Powdery mildew:** This fungus appears in dry weather, creating a white powdery residue, especially on the leaves. You can spray with summer oil, a baking-soda solution, an antidesiccant (which prevents drying out), or a sulfur-based fungicide.
- **Rust:** This fungal disease is most common in dry weather. Get rid of affected leaves, and water carefully only at ground level. Spray options include dormant oil, lime-sulfur fungicide, or rusticide (again, check with your garden center and follow label directions exactly).

IN THIS CHAPTER

- Understanding sexual propagation
- Sowing seed indoors
- Sowing directly outdoors
- Multiplying plants by vegetative means — cuttings and grafting

Chapter 10

Multiplying Your Plants

What can be more fun that producing more of the plants you love for free? Well, almost free. Horticultural folks refer to multiplying your own plants as *plant propagation.* Because this subject can be quite involved, you can find entire books devoted to it. This chapter focuses on just what you need to know as a home gardener.

THE BIRDS AND THE BEES (ACTUALLY IT'S MORE THE BEES)

When pollen from a flower is transferred from one flower to another (that's where the bees come in), the process is called *pollination.* The pollen first lands on the sticky surface part of the pistil (the *stigma*), the female part of the flower. This pollen grain from the male part (the *stamen*) of the flower grows down through the *stile* (again the female part). When this growing pollen tube reaches and is united with the ovule, fertilization has occurred, and the ovule develops into seed. This whole process is referred to as *sexual reproduction.* Whew! I was sweating all this sexual stuff.

Growing Plants from Seeds (Sexual Propagation)

In simple terms sexual propagation is growing plants from seeds. The seed consists of these three parts (as shown in Figure 10-1):

- **Outer seed coat:** It protects the seed.
- **Food reserve:** An endosperm.
- **Embryo:** The young plant itself.

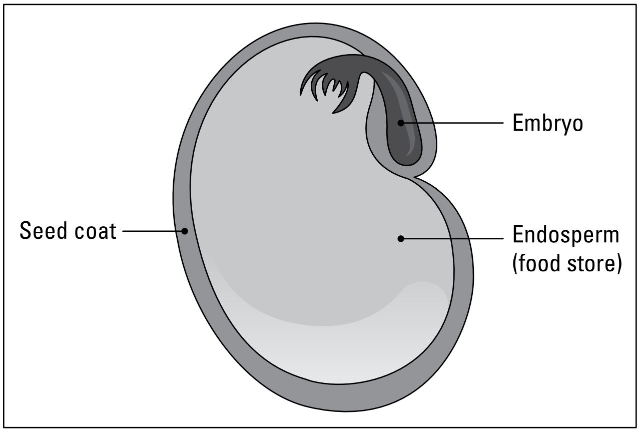

FIGURE 10-1: The basic components of most seeds.

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As you can see from this illustration, seeds are packages of life that contain all the critical parts they need to grow — a seed coat to protect the seed from drying out, a food source (also called the *endosperm*) to get them started when they sprout, and the spark of life, a live embryo, from which leaves, stems, and roots grow.

When purchasing seeds, you need to be aware of the broad categories of types of seeds that are sold, and that each category has its own characteristics. These sections present some general information about each of these types.

Recognizing the different kinds of seed

Here are the most common forms and types of seeds that you'll find at garden stores and in seed catalogs:

- **Open pollinated seeds:** These seeds come from varieties that are genetically true to type, so their seeds produce a plant similar to the parent. Heirloom varieties are this type, but not all open pollinated varieties are heirlooms.
- **F_1 hybrid seeds:** Also referred to *hybrid* seeds, these seeds are produced from specific parents with the known characteristics resulting in offspring (*F_1* stands for the *first generation*) that will be highly predictable. F_1 seeds are popular with some veggies such as tomatoes because they usually have resistance to various diseases. With flowers, especially annuals, hybrids frequently have larger flowers and disease resistance.
- **GMO seeds:** GMO stand for genetic manipulated organisms, and it refers to any organism that's genetic material has been altered using genetic engineering techniques. This subject is controversial, and I don't discuss it here because these seeds aren't available to the home gardener. They're seeds of major food crops used by some large commercial farms.
- **Organic seeds:** These seeds have been produced with no synthetic fertilizers or pesticides.
- **Conventional seeds:** These are most of the seeds that are produced and sold to the home gardener.
- **Treated seeds:** Some seeds are treated with a fungicide to prevent disease problems. The company selling seeds with this treatment must specify so on the seed packet. For most situations, such treatment isn't necessary or recommended for home gardeners. If you're an organic gardener and eschew chemicals, these treated seeds aren't your choice.
- **Pelleted seeds:** Some seeds are extremely small and dust-like (there are *one million* begonia seeds per ounce!). Hence, some seeds are coated with an inert material to make them easier to sow.

Sowing seeds versus buying plants

Growing your own plants from seed is fun, rewarding, and can be the practical choice. Here I have outline some of the key reasons to encourage you to give growing your own plants from seeds a try:

- **To produce larger quantities of a variety:** Plants look better when they're planted in masses or sweeps, but doing so can get expensive. Growing them from seed is an economical way to produce many plants of the same type.
- **To produce plants that you can't get at your local garden center:** For example, I love growing very tall snapdragons and zinnias because they're so great for homegrown bouquets; however, I can never find them at any garden

center. The stores mostly sell the low growing bushy types that are suitable planting in garden borders or flower beds, but they're not as useful for cutting where longer flower stems are more desirable. So, I buy the seeds of the varieties that fit this bill and I grow them myself.

- **To save money when you need larger quantities of a variety:** This consideration is a practical one. I mean, who doesn't like to save money? This point is especially true when I want a large number of annuals because they're easy and fast-growing plants.
- **To do what is best for the plant:** Some vegetables and annuals perform best when directly sown. They tend to resent transplanting. Fast-growing veggies and annuals are perfect candidates for direct sowing.
- **To have fun:** Sowing your own seeds is fun. It's also good for bragging rights. You can say with pride, "I grew these plants from seed!" Then your fellow gardeners may respect your gardening skills even more.

Buying seed: What to keep in mind

Success with growing from seed depends on many factors. I outline here some of the ones that are most important:

- **Buy from a reputable company.** You can find plenty of dependable seed companies out there. Check the Appendix for various garden organizations and plant societies to get their recommendations. Also talk with your garden club friends and trusted gardeners to find out their favorite seed sources. Cheap outdated seeds are no bargain because they may not grow or have low germination rates, so you'll have to spend more money buying more seed.
- **Check the seed packet for the date of packaging, the germination percentage, and the plant by date.** Seed companies are required by law to provide this information on the front or back of the seed packet. *Germination rates* (the percentage of the seed that is expected to sprout) vary by the type of seed, and federal standards are set for most seed sold.
- **Preserve the freshest of the seeds by storing them in a cool, dry place.** Some seeds stay viable longer than others. I like to store my opened seed packets in a sealed jar in which I place a drying agent like a small packet of evaporated dried milk or silica gel available at a craft store. Put this sealed jar in the refrigerator until you need to sow more of these seeds.

SAVING YOUR OWN SEED

Saving your own seed for your own plants is fun. You also feel like you're living off the land, especially if you want to save some money to grow your own healthy food. Here are a few of my suggestions to be more successful in this activity:

- **Harvest seeds when they mature.** Mature seeds usually are brown and dry. If they're green and not mature, they won't likely sprout.
- **Select from your most healthy and vigorous plants.** Notice which flowers are larger and better color and which individual veggie plants seems most productive and disease resistant. You want these plants to be your seed bearers.
- **Remove any pulp and soak overnight.** Doing so is appropriate for fleshy fruits like tomatoes. You want to soak off the pulp because it can contain germination inhibitors.
- **Store the seeds in a cool dry place.** When storing in a sealed container, add a drying agent like silica gel or evaporated dry milk.
- **Label the container that holds the seeds.** Include the name of the variety, when it was harvested, and from where.
- **Determine which seeds are likely to store well.** Some seeds stay viable longer than others. From trial and error, you can find out which store better. In general, if you purchased your original seed in paper packets, they usually will store well. If they were in sealed foiled packets, that may indicate that they're sensitive to drying out and won't store as well. F_1 hybrid seeds aren't good candidates to save because their offspring can be variable.

Testing seeds

If you harvest your own seeds or store them for a while and want to see if the seeds are still viable or alive, you can try one of the following.

Floating technique

If you pour your seeds into a container of water and they float, more than likely they're poor germinators. However, if your seeds sink to the bottom of the container, they should still be viable. This technique isn't 100 percent reliable, but it's a quick way of checking older seeds to see which ones are likely viable before planting them. Keep in mind that sometimes some seeds just float.

Wet towel technique

Major seed companies use this simple technique to check seed viability and predict germination rates. You can also do this test by following these easy steps (refer to Figure 10-2):

1. **Wet a paper towel.**
2. **Sprinkle a sample of your seeds on the towel (as in Figure 10-2A).**
3. **Roll up each paper towel, place it in a plastic bag, and label it (as in Figure 10-2B).**
4. **Place the bag in a dimly lit area at room temperature.**

   Don't place it in the direct sun.
5. **Check it every few days to see if the seeds have sprouted as in Figure 10-2C.**

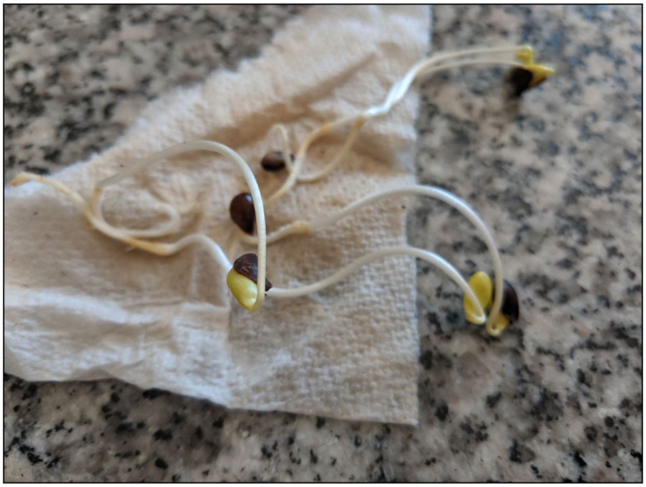

FIGURE 10-2: The wet towel technique.

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Treating seeds to increase germination

You can try one of the following two techniques to increase your germination with certain types of seeds.

- **Scarification:** This mechanical technique involves weakening, opening, or otherwise penetrating the coat of a seed to encourage germination by allowing water to enter the seed. A simple way to accomplish this is to scrape the back of the seed on sandpaper until you see that the seed coat has been penetrated. The seed coat is usually darker than the rest of the seed. This technique is most useful on larger seeds with hard seed coats like melons, cucumbers, and morning glories.
- **Stratification:** This process treats seeds to simulate natural conditions that the seeds must experience before germination can occur. This usually involves a cold period — a pretend winter so to speak. Many seeds have an embryonic dormancy phase and generally won't sprout until this dormancy is broken.

  Although this method can be quite complex, in its simplest form it involves placing the seeds in a damp medium like peat moss and storing them in a refrigerator for several weeks to a few months, which simulates a winter dormancy period. Seeds of plants that are cold-hardy perennials, semi-evergreen, and evergreen plants frequently benefit from this treatment. This includes seeds of plants from deciduous trees like walnut, maple, butternut, and oak, evergreen trees like pine, and shrubs like witch hazel. Some flowers like annual and perennial poppies, certain other herbaceous perennials, and some herbs also profit from this technique. Carefully read the instructions on the seed packet to see if this treatment is recommended for the seed that you're sowing.

Sowing Seed Indoors

If you want to get a head-start in the spring (a great way to chase away winter blues!) or if you're dealing with delicate seedlings, starting seeds indoors can be the right way to go.

Here are some seeds that are better sown indoors:

- **Flowers:** Most herbaceous perennials, most small-seeded annuals that aren't directly sown, like snapdragons and begonias, and most trees and shrubs
- **Vegetables:** Broccoli, celery, collards, eggplant, kale, kohlrabi, leeks, onion, peppers, scallions, and tomato

Fore best success heed these guidelines. These sections are some of the most important.

Getting better results

Seed starting dates, adequate light, correct germination temperatures, and sterile or pasteurized potting mixes are important considerations in seed starting:

- **Don't begin too soon.** Starting seeds too early is a quite common mistake. When the winter has been long and cabin fever is starting to take hold, gardeners are eager to get on with spring. The problem with starting too early is that you'll end up with plants too large for your indoor growing space. Before you start anything, check the seed packet or your local Cooperative Extension office for recommended indoor starting dates. The correct start date varies according to the last frost-free date, which is the safest time to move the plants from indoors to their outdoor garden.

  REMEMBER

  You can start early small-seeded plants like begonias, snapdragons, and petunias as well as most perennials that take longer to grow.
- **Make sure you have adequate light — artificial or natural.** This factor is critical. Seedlings need strong light to grow into sturdy plants, so I suggest you use a bright south-facing window or sufficient fluorescent or LED lights, and then place the seedlings close (usually a few inches) to the lights. Refer to Chapter 15 for more discussion about using lights.
- **Check the seed packet or look online to find recommended germination temperatures for the seeds that you're sowing.** Many seeds germinate at around 70°F (21°C). If your growing area is much cooler than the recommended temperature, the germination can take much longer, and in some cases the germination will be low. If the growing area isn't at the recommended temperature for ideal germination, I suggest you use seed starting mats available at most horticultural suppliers. Make sure the heating mat is moisture proof and designed for horticultural use, not for achy muscles.
- **Use sterile or pasteurized seed starting mix.** Young seedlings are extremely vulnerable to diseases and insects, so using sterile or pasteurized mix is essential to protect them against these problems.

  TIP

  If you want to pasteurize you own seedling mix, place it in a steel container, place it in the oven, and heat it until the soil reaches 180°F (82°C). Use a meat thermometer to measure the temperature, and then leave it in the oven for 30 minutes. This baked soil smells like raisin bran, though my wife doesn't agree with my perception of this scent.
- **Consider starting larger seeds like squashes, cucumbers, zinnias, and marigolds directly in the pots that they'll be transferred from into the garden.** Peat pellets and peat pots are handy for medium-sized seeds. The entire container can then be planted into the garden when the seedlings have reached the correct size (as Figure 10-3 shows).

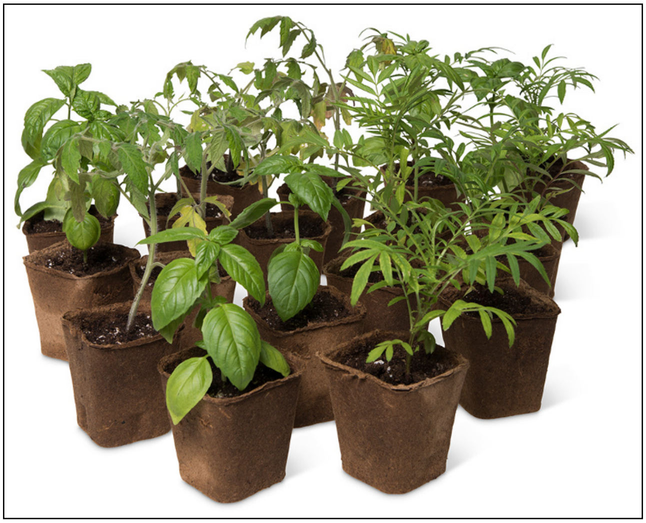

FIGURE 10-3: Starting larger seeds in pots made of compressed peatmoss makes the later process of transplanting the seedlings into the garden a snap.

Photo courtesy of Gardener's Supply Company

- **Use flats for smaller seeded varieties.** *Flats* are usually rectangular containers with small holes in the bottom for drainage. Clear plastic berry (refer to Figure 10-4), egg cartons or vegetable containers are great to use for seed starting and are free.

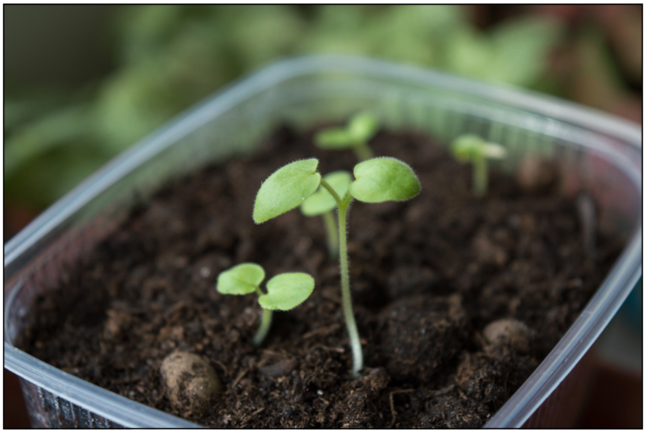

FIGURE 10-4: Use a plastic container to plant smaller seeds.

Shutterstock

- **Initially water from the bottom by placing the seed container in about an inch of warm for 15 minutes or so.** The potting material will gradually absorb the water and won't wash out the seeds, which can happen if the

> container is watered from the top. After the potting material has absorbed the water, let it drain and place it in warm dry place. If you use a clear plastic container, close the lid or use clear plastic wrap to hold in the moisture until the seeds germinate. Then you can remove the cover.

TIP

If you have extremely fine seed, you can ease the process by mixing the seed into a tablespoon or so of fine white sand before you sow it. Doing so can help to distribute the seed more evenly.

Also check out seed starting kits offered in various seed company's catalogs; they can also make this job easier.

Thinning seedlings

You can easily sow too many seeds in a given space, especially if the seeds are very small. As a result, you end up with too many crowded seedlings all battling each other for nutrients and light. If this scenario continues, all the plants will suffer. You need to step in and save the day by thinning.

TIP

To do so, snip off (using scissors) any weak or unwanted seedlings at the surface level of the potting material. Don't try to pull them up because doing so can damage the plants next to the ones you remove.

Even though thinning can be an excruciating task, it's an important one. Not removing excess crowded and weak seedlings can lead to disease and poor growth of the stronger ones because of too much competition for water, light, and nutrients. You can refer to the seed packet for the correct spacing information.

Hardening off

After the plants have grown indoors for a while and they're ready to be planted in the garden, you need toughen them up. This process, called *hardening off*, prepares them for their new environment. After all, they've been coddled indoors with high humidity, warm temperatures, moderate light, and no wind. Now they have to face the hard reality of lower humidity, higher light, varying temperatures, and possible drying wind in their new environment — outside.

The shock of introducing them in this new setting too quickly can kill them. Follow these steps when hardening off your seedlings:

1. **Slowly reduce the frequency of watering so the plants dry off a little more than before and gradually lower the temperature where they're being grown until it's close to the outdoor environment to which you'll introduce them.**

Do this in the week or so before you introduce the plants to their outside home.

2. **Place them in their original containers in a spot in the shade outdoors out of the wind.**

   You can also cover them with a single sheet of newspaper to provide some protection.

3. **Watch the seedlings for several days to monitor how they're doing.**
4. **Gradually move them to more sunlight.**

   After a week or two, if they're still doing well, you can transplant them into their garden spot (see the next section).

REMEMBER

Make sure you water them well as you transplant them. Carefully watch their watering needs because until their roots get established, they're vulnerable to drying out. After about a week when they look strong, you can fertilize them with any all-purpose water-soluble fertilizer to give them a boost.

Transplanting seedlings

Transplanting your inside seedlings outside is a delicate procedure. Before you decide to do so, wait until the seedlings have at least one set of true leaves (foliage leaves); refer to Figure 10-5. Keep the following points in mind as you transplant your seedlings:

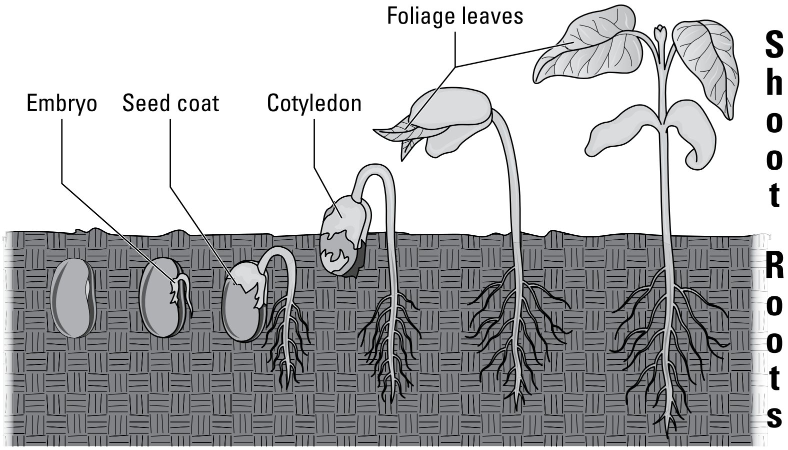

FIGURE 10-5: How seedlings develop.

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- **Whatever you do, don't pull the seedlings out of the potting material.** Gently pry them out with a plastic label or spoon.
- **Avoid damaging as few roots as possible.** If the roots of the seedlings are intertwined, gently tease them apart by hand or with a small fork.
- **Keep as much potting material on the roots as you can.** This will prevent as much damage as possible to the small roots encased in the potting material.
- **When you handle them, be careful not to squeeze the stem too hard or you'll damage them.** Handling by the leaves is usually a safer bet.
- **Make a generous hole for the seedling roots with a pencil or dibble (see Chapter 5 for more information on dibbles) so the roots won't get too scrunched when they're transplanted.** Firm up the potting material around the seedling roots.
- **Carefully water the seedlings.** Be sure to push the seedlings upright if the watering knocks them over.

Sowing Seed Directly Outdoors

You can sow many vegetables and annual flowers directly outdoors in your garden. Some require it because they don't transplant well like beans, for example. Although you can start many seeds inside, you can save time and trouble by just directly sowing them in your garden ground. For instance, I've started zinnias and marigolds indoors to get a head start, but I found the ones I sowed outdoors grew about as quickly as the ones I started indoors.

These seeds are commonly sown directly outside:

- **Flowers:** Cosmos, marigolds, annual poppies, sunflowers, sweet peas, and zinnias
- **Veggies:** Beans, beets, carrots, melons, peas, radish, spinach, squashes, turnips, and zucchini

Here are a few factors to keep in mind when sowing seeds directly in the ground:

- **Soil temperature:** Different types of plants have various preferred temperatures for germination. Most seeds germinate well at about 70°F, but there are exceptions so always check the seed packet for guidance. Some cool season vegetables won't germinate if the soil temperature is too high (usually above 80 to 90°F); the same goes with some perennials. On the other hand, some veggies and annuals won't germinate unless the soil is warm enough, which is especially true with warm season veggies like beans and sweet corn. If the soil is too cold (below 60°F), the seed will just sit there or rot.

- **Soil moisture:** Seed won't germinate without moisture. More than likely, you've heard stories about seeds in dry ancient tombs that didn't germinate for hundreds of years until they were given moisture. As soon as a seed starts to germinate, it's extremely vulnerable to drying out. It must have consistent moisture from this point on or it will quickly perish.
- **Disease:** Young seedlings are most susceptible to disease, especially the dreaded damping-off, which is a disease most found on seedlings when they sprout and is characterized by a constriction or rotting of the seedling stems at the soil level that results in the collapse of the seedlings. Several different fungi frequently found in the soil cause it. The best way to combat this disease is by not sowing the seed when the soil temperatures are too low. Furthermore, be sure your seeds are planted in a well-drained area and that you don't over water.
- **Pests:** Insects, snails and slugs, and rodents love to dine on succulent seedlings, so be on the lookout for these critters. Because plants are so small at this stage, these pests don't have to do much damage to kill the young plants.
- **Planting depth:** Don't cover the seed too deeply. Read the directions on the soil packet for the suggested seed planting depth.
- **Poor soil:** If the soil is hard and crusty, the seedlings may languish before they break the surface. Make sure the soil is soft and in good condition before you sow.

Cloning Your Plants — Vegetative Reproduction

Vegetative reproduction (also known as *vegetative propagation*, *vegetative multiplication*, or *vegetative cloning*) is any form of asexual reproduction occurring in plants in which a new plant grows from a fragment of the parent plant. No transference of male and female genetic material happens that you have with sexual reproduction. As a result, this form of reproduction or multiplying enables you to produce more plants exactly like its parents. No change in the genetic makeup of these plants happens.

In fact, you may even have already seen or done it, for example, by putting a stem of a favorite houseplant in water, waiting for it to develop some roots, and then potting it. (Chapter 7 provides more detail how herbaceous perennials are propagated.) The following sections examine a few simple ways that propagation happens.

Cutting and rooting stems

Stem cuttings is the most used method (see Figure 10-7) to propagate many plants, both tender soft-tissue plants like coleus and geranium to softwood (late spring growth) cuttings of woody plants like trees and shrubs.

Here are steps to take for stem cuttings:

1. **Get a clean, preferably new pot (because a new one will be sterile) or soak a used pot for few hours in a 1:10 solution of chlorine bleach to water to sterilize it.**

   Rinse the pot thoroughly after soaking to remove the chlorine residue.

2. **Obtain some soilless potting mix, available at any garden center, sterilize it, and fill the pot within an inch or so of the rim.**

   Soilless potting mix works much better than garden soil because it drains better. Although most of the commercial mixes say they're sterile, I don't take their word for it. Many times, this material has been stored outdoors and exposed to the elements.

   TIP

   To sterilize, heat this dampened potting material by cooking it in an oven until it reaches 180°F for 30 minutes or microwave it on high for 2 to 3 minutes. Doing so kills all the disease organisms, weed seeds, and insects and their eggs.

3. **Use a sterile sharp blade and cut off a healthy piece of the stem (about 3 to 4 inches [7.5 to 10 cm] with two or three leave attached (see Figure 10-6A).**

   I prefer using a new single edged straight razor blade versus a knife because I know it's extremely sharp and sterile.

4. **Dip the cut end of the cutting in a powder or liquid rotting hormone.**

   I prefer the liquid form because it's absorbed into the cut surface better.

5. **Slightly firm down the surface of the potting material in the pot and then make a hole in the medium, about the size of the diameter of the stem cutting using a pencil, dibble, or chopstick.**

6. **Place the stem cutting in the premade hole and firm the potting mix firmly around the cutting stem enough so that it stands on its own.**

7. **Place three or four vertical bamboo sticks into the potting soil about 12 inches high around the inside rim of the pot as shown in Figure 10-6B.**

   The bamboo sticks will support the plastic bag you place over it in Step 8. Don't allow the bag to touch the leaves of the cutting because dampness on the inside of the bag can cause diseases to form on the leaves.

8. **Secure the plastic bag over the outside rim of the pot with a rubber band.**

   This bag serves as a miniature greenhouse for the cutting and provides it the high humidity it needs to become rooted. In most cases, if the soil is damp when the pot is covered with the plastic bag, it doesn't need to be watered again until the roots form because the moisture is recirculated inside the bag.

9. **Place the bagged pot in an area with room temperature (65 to 75°F [18 to 23°C]) where there is bright light but no direct sunlight because direct sunlight would cook the plant inside the bag.**

10. **Wait.**

    REMEMBER

    The time it takes for the roots to form varies greatly depending on the type of cuttings. If they're soft green stems, like you'd find on geraniums or coleus, they may be rooted in four to six weeks or sometime sooner. If the stems are brown and woody, like those on cuttings of trees and shrubs, it could take two to three weeks longer.

11. **After the allotted time, remove the plastic bag and gently tug on the cutting.**

12. **If you feel resistance indicating that it's firmly rooted, gently remove it by carefully digging out the root mass below the cutting with your fingers or a fork and repotting it in its own container of potting mix.**

13. **Water it well.**

    REMEMBER

    If the roots aren't well established, moisten the medium if needed, cover the pot with the plastic bag, and put the pot back in the location it was and wait a little longer.

Leaf cuttings are a slight variation and are commonly done on succulent leaves like African violet and begonias. Hardwood cuttings and semi-hardwood are taken on trees and shrubs from mid-summer to early autumn. Evergreen shrubs and conifers are sometimes propagated in this manner.

Air layering

Something is intriguing about air layering. *Air layering* simply is a method of propagating a plant by girdling or cutting part way into a stem or branch and packing the area with a moist medium, commonly sphagnum moss, covering the moss-packed area with a waterproof sheath to hold in the moisture and to stimulate root formation so that when the stem or branch forms roots, you can remove it and it as an independent plant. The idea that you can produce a plant on top of a plant seems strange, but it really works. To air layer, stick to these following steps. Make sure you pick a sturdy limb or stem that is about pencil diameter.

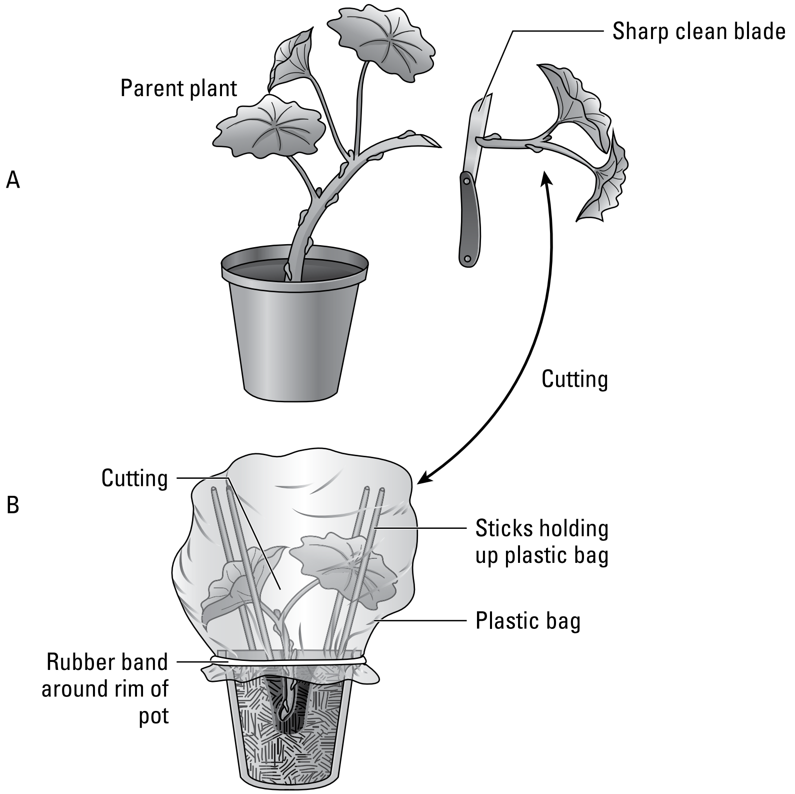
Sharp clean blade
Parent plant
A
Cutting
Cutting
B
Sticks holding up plastic bag
Plastic bag
Rubber band around rim of pot

FIGURE 10-6: Cut with a sterile blade (A) and add sticks to support the plastic bag (B).

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1. **Girdle the stem with a sharp knife or single edged razor blade.**

   Girdling means removing a band of bark about 1 to 2 inches wide all the way around the stem as shown in Figure 10-7A. Doing so induces root formation at the open area.

2. **Wrap the girdled stem with a handful of long-fibered sphagnum moss (available at most garden stores or online) that has been dampened (as in Figure 10-7B) and squeeze out any excess water.**

3. **Cover this area with aluminum foil or clear plastic sheet (refer to Figure 10-7C).**

   A cut clear plastic sandwich bag works great.

4. **Make sure the plastic or other covering is sealed at the top, bottom, and side with plastic or electrical tape or rubber bands to hold in the moisture.**

   You can remove it in two or three months or when you see roots touching the outside of the sheet.

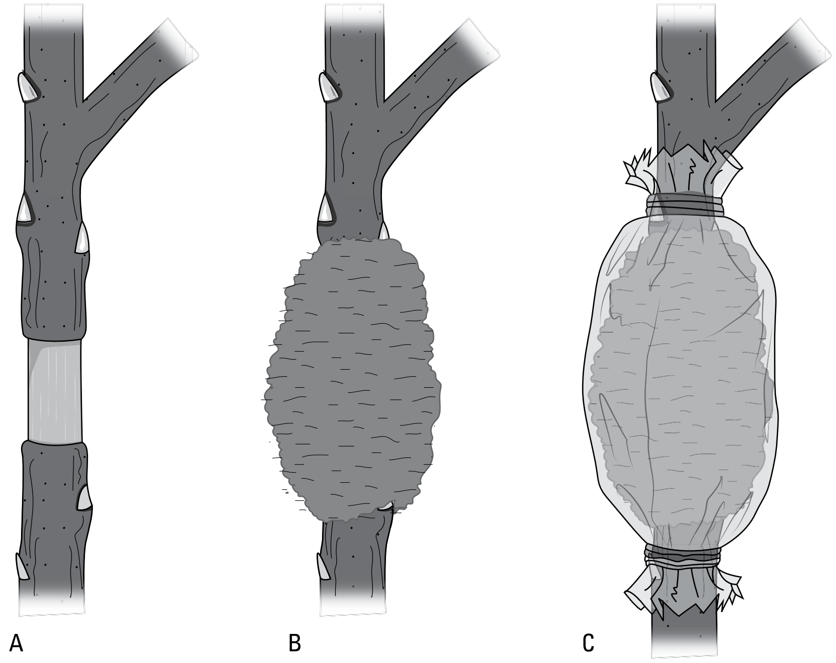

FIGURE 10-7: Girdle the stem (A), wrap the stem with sphagnum moss (B), and cover the area with foil or plastic (C).

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Reproducing Bulbs

When reproducing or multiplying plants, you may not think of including bulbs but, like all plants, they can be multiplied. I include a few techniques that you can try in the following sections.

REMEMBER

Most bulbs produce offshoots, also called *cormels*. You can break them off and replant them to develop into larger flowering size bulbs or corms. Here's a heads-up: These small bulbs or cormels can take a few years of just producing foliage before they reach flowering size. You get best results with dormant bulbs in late summer after the foliage has died down.

Bulb scooping

If you're ambitious, you can *scoop* bulbs. Gardeners most often use this technique with hyacinths. Just follow these steps:

1. **Hold off on planting a few of the bulbs that you bought in the fall and put them in a paper bag somewhere dry and cool (60 to 65°F [15 to18°C) away from sunlight to keep them fresh.**
2. **Use a sterilized, sharpened teaspoon or melon scoop to dish out (about a half-inch) the *basal plate* (bottom) of a healthy, dormant bulb.**
3. **Dust this scooped area with a powdered fungicide to prevent infection.**
4. **Place the scooped bulbs with the flat base of the bulb pointing up on a layer of moist, coarse sand or perlite in a dark, warm place (65 to 70°F [18 to 21°C]).**
5. **Check regularly for rot and keep moist.**

   Bulblets will form on the exposed edge of the scales in about 12 weeks. At this stage, detach these small bulbs and plant them indoors in potting mix if it's too cold outside or directly in the garden if it's not too cold.

Reproducing lilies

It's no secret that lilies hold a special place in my heart. New varieties are appearing every year, and the newer ones are a bit pricy so knowing how to make more of them yourself can save you some money. You can reproduce lilies in two ways:

- **Divide them.** They're like other bulbs and perennials, and you can divide them (see Figure 10-8A).
- **Snap off bulbils and plant them like seeds.** Bulbils are (a small bulb-like structure, usually found in the base of a leaf or stem, that will usually form a new plant). You can snap them off and plant them like seeds (refer to Figure 10-8B). As I mention in Chapter 8, lilies have a different construction than other bulbs. Their bulbs consist of scales, which are like chips that can be peeled off and placed in a plastic bag of peat moist, vermiculite, or potting soil until they form roots and shoots, and then you can plant them in your garden.

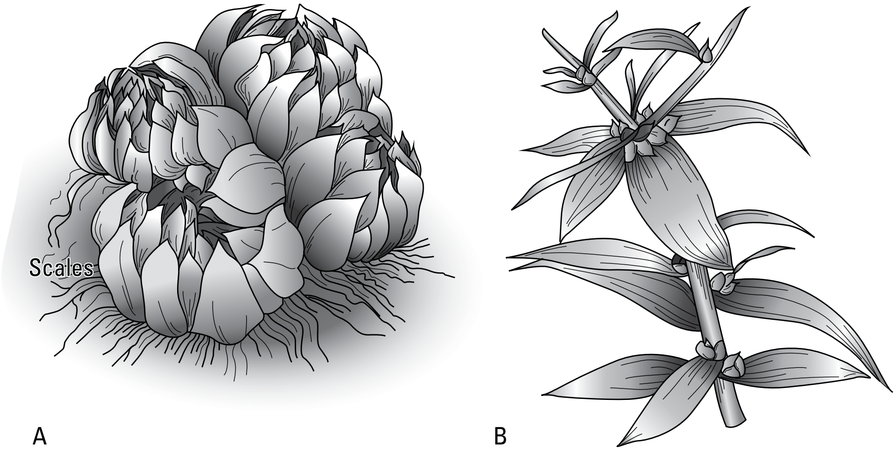
To try this second method, follow these easy steps:

1. **Space the bulb scales so they don't touch in a plastic bag.**
2. **Chill the bag in a fridge for 6 to 12 weeks to trick the bulbs into thinking they've gone through winter.**

3. **Place the plastic bag in diffused bright light, not direct sunlight, at room temperature.**

   They'll start to sprout in several weeks.

4. **After the scales show some new growth, plant them in a protected place in your garden where you can take special care to keep them watered until they grow into small plants that you can then plant where you want in your garden.**



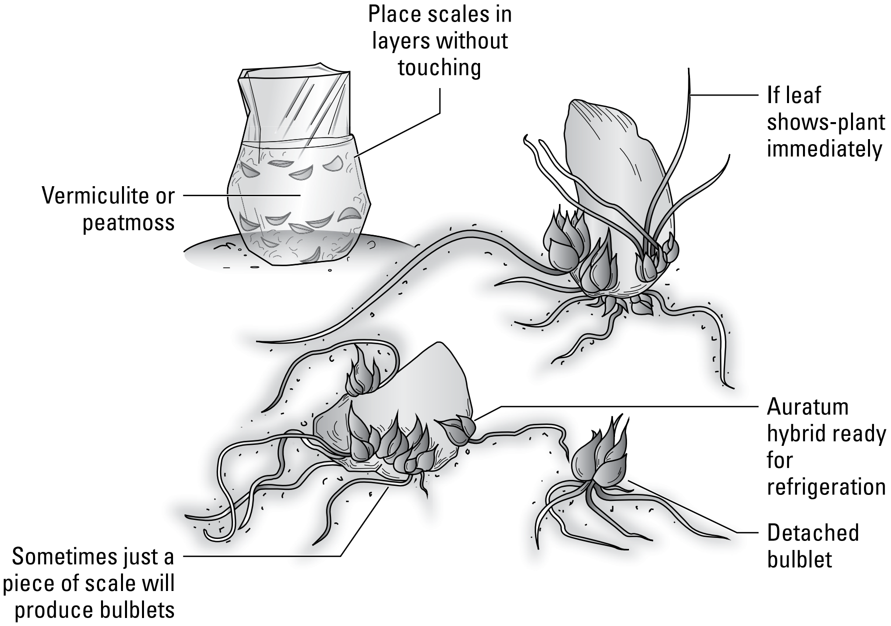

Place scales in layers without touching
Vermiculite or peatmoss
If leaf shows-plant immediately
Auratum hybrid ready for refrigeration
Detached bulblet
Sometimes just a piece of scale will produce bulblets

FIGURE 10-8: The two ways to reproduce lily bulbs: divide them (A) or snap off bulbils and plant them (B).

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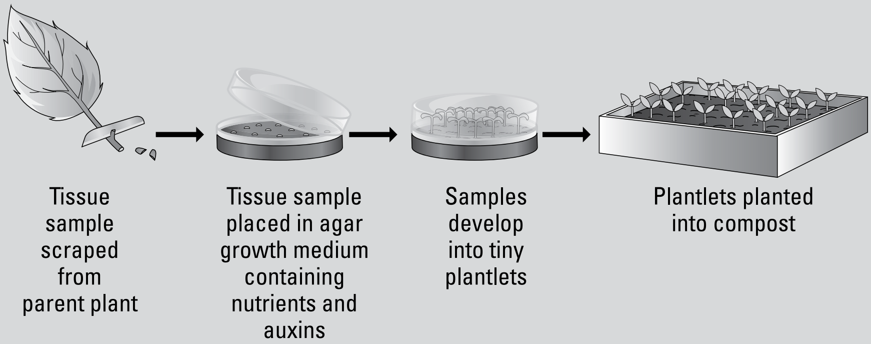
LEAVE IT TO THE PROS — TISSUE CULTURING

Tissue culturing, also called *mericloning, micropropagating,* and *cloning*, has revolutionized modern horticulture. With this technique, a prized variety can be multiplied by the tens of thousands to be identical to its parent. In fact, probably unbeknownst to you, almost all patented cultivars that you buy at your garden store have been tissue cultured.

This technique requires sterile lab conditions to be most successful. Companies specialize in only doing this technique.

This process can be quite involved with various different techniques used; however, basically the single cells or the groups of cells from the growing tip or leaves of the plant to reproduce are placed in a sterile flask or petri dish of agar (like gelatin) that contains special nutrient solutions and growth hormones. The single cells or plant parts grow in this sterile medium until they're large enough to be transferred to a container to be grown out much like a seedling. It's quite amazing! The following figure illustrates this process.


Tissue sample scraped from parent plant
Tissue sample placed in agar growth medium containing nutrients and auxins
Samples develop into tiny plantlets
Plantlets planted into compost

3

Stretching Your Garden beyond Its Boundaries: The Permanent Landscape

IN THIS PART . . .

Grow an emerald green lawn that would make your dad proud.

Select and grow flowering, evergreen, and deciduous trees that are perfectly suited to your garden needs.

Choose and grow evergreen and flowering shrubs that will provide garden interest for many years.

Find out which vines will give you the accent you need in your garden.

Blanket your open spaces with groundcovers.

IN THIS CHAPTER

- **Making a new lawn or adding grass to an old one**
- **Watering and fertilizing your yard**
- **Cutting the grass**
- **Giving your lawn some fresh air**
- **Battling weeds**

Chapter 11

Growing a Perfect Lawn

Ah, to run and play, or nap, or wiggle your bare toes on a lush and perfect greensward — it may seem like an unattainable dream, but good news! A fine-looking lawn is perfectly doable and within your reach if you approach the project gradually, doing the right thing month to month and year to year. Lawns consist of many different small plants, often different varieties of grasses. So growing grass is like raising a crop or a specialty garden of turf grass.

It's worth it to put a lot of effort into your lawn, because a good lawn makes everything else look good, and a gorgeous, well-kept lawn sets the tone for an entire yard. The purpose of this chapter is to demystify the basics. Find out what to do, when, and how, and then you're in business.

Patching Up the Lawn You Already Have

Chances are, if you're a homeowner, you already have a lawn of some kind. Sometimes you just need to rejuvenate a bald spot or two. You have a couple of options:

- **Add some pieces of sod.** This is the quickest way to cover bald spots in your lawn. If you choose sod, make sure you pick out a roll that it is fresh and not dried out. Refer to the section, "Your own turf: Growing lawns from sod," later in this chapter for more details.

- **Reseed the area.** This choice takes a bit longer for the grass to become established. If you choose this option, lightly cover the seeds to hold in moisture. (I explain how much seed to use, which depends on the type of grass you have as well, and other important information in the section, "Growing lawns from seed," later in this chapter.)

In either case, try to match the variety of grass. You usually need some minimum preparation of the area before putting down sod or sowing the seed, such as removing all weeds and scratching the soil surface with a steel rake so that the seeds contact the soil. If you use sod, press down the sod with your feet or use a roller (available from equipment rental places) so the sod's roots make contact with the bare ground it's placed over.

No matter which option you choose, regularly water the area to keep the soil damp until the seed or sod becomes well established. Let it grow, about 2 to 3 inches (5 to 7 cm) before you mow it. Some folks have found that adding a small amount of grass fertilizer with a high phosphorous number (the middle number on the fertilizer bag) helps the roots establish quicker.

Making a Lawn from Scratch

If you're a new homeowner or have bravely decided to start a lawn with a clean slate, maybe you envy those who have already-established lawns. Well, they should envy *you*. You have a fabulous chance to get off on the right foot. If you do it carefully and do it right, the new lawn can surely be a showpiece. This section shows you what a new lawn needs and how you can provide it.

Preparing your yard for a lawn

Before you do anything, you need to rid your property of all those things that you wouldn't want in a lawn: No weeds, no horrible old remnants of a failed lawn, no rocks, no construction debris, no toxic waste, no junk, no cars you plan to fix up, no dead and dying plants, no roots from long-gone plants. Scrape, dig, haul away — do what you must.

WARNING

In most states, you're legally required to check for utility lines before digging. Even if it isn't a law where you live, I still recommend you check than digging and accidently hitting a telephone, cable, gas, or water line. That can be an *expensive* mistake. So call the gas company, phone company, cable company, and water company if you have to dig. They're only too happy to come out, check, and flag the stay-away and don't-dig areas for you.

TIP

You can simply call 811, which is a central service that notifies all the utilities in your service area. After you've cleared the space for your lawn, make sure you follow the advice in the next few sections.

Start with weed prevention

The minute you clear an area, weeds rush in to fill the void. Unless you're prepared to forge ahead quickly, these eager settlers are a problem. But they don't have to be. Consider that if you treat the area for weeds now, before putting in the new lawn, they won't be there when the lawn goes in. Talk about a fresh start! You can kill weeds and weed seeds on-site in lots of ways.

WARNING

Rototilling can be a big mistake! Cultivating or tilling the area, although it makes you feel like a gardener, is perhaps the worst thing you can do if you want a weed-free lawn. You're sure to dredge up all sorts of long-dormant weed seeds and bits that can regenerate. Also chopping up the weeds and weed grasses can spread them. Instead, if the area isn't too big, cover it with black plastic or organic mulch (rather thickly — 6 inches [15 cm] isn't overkill). Any inexpensive, lightweight mulch that's readily available is a good choice — try peat moss, pine needles, or even a thin layer of ground-up leaves. Some folks have also been successful using several sheets of damp newspaper. You can cover this paper with mulch to prevent it from blowing and so it won't be so unsightly. For this cover you can use straw — don't use hay because it can contain weed seeds — or use a spun-bond material blanket, also sold as floating row covers.

The object is to keep out light and water and to smother any ideas lingering weeds may have of germinating. Keep this barrier in place for a month or even a full season until the weeds and weed grasses show no signs of life. For more about dealing with weeds, see the section, "Battling the Weeds."

Improve soil quality

You rarely think of your yard as a garden, yet it is — a garden of grass. When you want to put in a new lawn, now's your chance to supply that fertile, well-drained ground that all gardens love so well. Lay down plenty of organic matter (such as compost, *leaf mold* [composted tree and shrub leaves], or well-rotted manure). Add topsoil, too, but only if you can get a weed-free batch. You can mix these goodies with the native soil if it's not dreadful. Otherwise, provide at least 3 to 4 inches (15 to 20 cm) of the good stuff, the depth to which grass roots generally grow.

Grade the yard

Lawns grow well and look splendid on fairly level ground. Fill in low spots and smooth down higher spots. The object is to even it out as much as possible. Your croquet and bocci games will benefit and, more importantly, mowing will be a lot easier. Seeing to the gradient before planting, of course, is best. You want your lawn to slope slightly, away from your house. Otherwise, both rainfall and zealous watering can lead to a wet basement and a weakened foundation. Work when the ground is moist (dry soil resists grading) and use a shovel, a rake, and even a carpenter's level. It doesn't have to be perfect, but do the best job you can.

If the grading process daunts you by all means, hire a contractor. See Chapter 2 for more information on getting some help.

Check the drainage

Make sure your soil drains okay. If the lay of your land or the soggy or clay-laden quality of your soil is cause for concern about drainage, do get help. Gravel-filled trenches, French drains, underground pipes, and so forth are all remedies, but installing them is not for the amateur or the faint-hearted! See Chapter 4 for more tips on dealing with drainage.

Designing the lawn

After you have your ground prepared, you're ready to contemplate actual lawn size and shape. Some of the improved area may go to bordering walkways or flowerbeds. You want to allow for edgings. Eventually, you may decide to place a tree or two in the middle. Design is really up to personal preference, and you can apply some of the tips for designing a garden to lawns as well (see Chapter 2). But for now, remember the following:

- Plentiful sunshine is a recipe for lawn success. If your lawn isn't in full sun, check out grass varieties that are shade tolerant.
- If people don't constantly walk through your yard (to get to a door or a patio), installing a paved walk or graveled path would be more practical. Installing walkways before you start your lawn usually works best.
- If your lawn isn't large, make sure the grass is in scale with your house and the rest of your property.

- Keep your yard's shape compatible with the surroundings; if your strict, straight-edged, geometric lawn is formal, then is your house's architecture formal, too? Perhaps softer, oval, or irregular less-rigid boundaries would be better. You can purchase or make plywood or metal forms for these boundaries.

Seeding and Sodding: Adding the Grass

Whether you're starting with a new lawn or trying to improve an already-existing lawn, the grass is the real point and makes all the difference in the world. Unfortunately, having great grass isn't simply a matter of going to the store and buying grass seed.

You can choose from many types of grass seed, and the type you need depends on the climate you live in, the amount of light your yard receives, and whether you have any texture, color, and height preferences for your lawn. Some people like slow-growing grasses so they don't have to mow quite as often. Other people insist on having Kentucky bluegrass in their yards — regardless of whether they actually live in Kentucky. I cover many of the options available to you in the next few sections.

Some people even choose to have a lawn without grass. You can get out of planting grass by using clover or low-growing groundcovers like thyme or, in shady areas, moss. For more information on groundcovers, see Chapter 14.

Determining the grass you want or need

If you're shopping and you don't yet know what you want in your lawn, browse the grasses available, looking for one that appeals to you and seems like a match for your growing conditions. If you're really at sea, call a landscaper or lawn-service company and have someone come over to view the intended site and discuss your options.

TIP

If you don't know what you have in your existing lawn and you want the new grass to blend in properly, do this simple step: In about late spring or early summer, when the grass is thriving, dig up a representative chunk and take it to your local garden center, Cooperative Extension Service, a good landscaper, or even a lawn-service company representative. These professionals know or can point you to someone who can identify the grass.

Grass comes in many varieties and their relatives — hundreds, in some cases. The differences may be pretty subtle. Don't worry, though. Some grass varieties perform better than others in any given area, and the way to find out is to ask someone knowledgeable, such as a staffer at your local nursery, a landscaper, or a lawn-service person. (Hopefully, the people who order grass seed and sod for your local retail stores know what they're doing and order only what prospers in the area.)

To complicate matters — but not too much — grass blends within each category of grass are popular. *Blends,* which usually contain two to four varieties of one type of grass, are smart because they make a lawn more resilient (a pest or disease problem won't cause the entire show to falter) and more adaptable (grass will show up in both sun and shade areas of your yard). You also need to consider whether you need warm- or cold-weather grass and whether you want to go with seed or sod. Read on!

Cool-season and warm-season grasses

Cool-season grasses are the grasses of the North — the parts of the country where summers, although warm and sometimes humid, are short and where winters are cold and often snowy. These grasses grow actively in spring and fall, slow down a bit in summer, and start to go dormant in the winter. These grasses do best at temperatures between 60 and 80°F (15 and 26°C) and survive freezing winter temperatures; they can't tolerate truly hot weather without going dormant. Favorite cool-season grasses include Kentucky bluegrass, fescue (fine and tall), bentgrass, and perennial ryegrass.

For details on cool-season grasses, including info on appearance, descriptions, and care instructions, see Table 11-1.

The West Coast covers a huge area with various climates; bluegrasses and perennial rye grasses work for most of these climates, but be sure to check with your local garden suppliers to find out which varieties perform best in your area.

Warm-season grasses are the grasses of mild climates, including the South and the Gulf Coast, areas where summers are notoriously hot and long, often humid, and where winters are mild but rarely freezing. As you may expect, these sorts of grasses don't survive extremely cold temperatures. Their toughness applies to hot weather. From late fall to early spring, the off-season, they simply turn brown. Favorite warm-season grasses include Bermuda grass, bahiagrass, buffalograss, centipede grass, St. Augustine grass, and zoysiagrass. For more details, see Table 11-2.

TABLE 11-1 Cool-Season, Northern Grasses

Type	Appearance	Ideal Mow-to Height	Description and Care
Kentucky bluegrass	Blades are fine- to medium-textured, canoe-shaped, and a nice dark blue-green color	1¾ to 2½ in (4.4 to 6.3 cm)	Not very drought-tolerant (goes dormant if the conditions are too hot and dry); water generously! Good disease-resistance; doesn't tolerate heavy foot traffic; has relatively shallow roots — makes a good showpiece lawn rather than one that's tread upon a lot.
Fescue	Texture is very fine, bristle-leaved; color is medium-green	1½ to 2 in (3.8 to 5 cm)	Doesn't like to be soaked or soggy; water deeply and infrequently. Fescue is the favored grass type for sports fields, so you know it'll tolerate foot traffic! Some varieties perform well on poor soil and in some shade. Fescues are often mixed with other grasses.
Bentgrass	Very fine-textured; at about an inch tall, a blade begins to bend, hence the name	¼ to 1 in (.63 to 2.5 cm)	A thirsty grass — give it plenty of water, as often as weekly during the height of the growing season. The stems (technically *stolons*) are wiry and form thick mats, so don't let this grass get too tall or unkempt or you'll soon have a major thatch problem. That said, bentgrass is a popular grass for golf courses, putting greens, and grass tennis courts. Use a mower with very sharp blades.
Perennial ryegrass	Fine-textured; glossy, dark green blades	1½ to 2 in (3.8 to 5 cm)	Likes consistent, regular water; has shallow roots. Disease-resistant, tolerates foot traffic well. Nice in full sun or shade — quite adaptable. Mixes well with other types.

TIP

Bermuda grass can be a real pain when it invades your flower bed, but I've found an excellent use for it — for a dog run. We have two large dogs, and this grass holds up to dogs running and playing in it. Its thick roots make it difficult to dig, and dog urine doesn't seem to bother it at all.

Growing lawns from seed

Growing a lawn from seed is cheaper than installing sod. It's satisfying, and it feels like actual gardening. The disadvantages are that it takes longer to become a lawn, you have to protect the baby lawn from birds and pedestrians, and watering just right is tricky but critical. Most grasses do fine from seed; however, zoysiagrass, buffalograss, and centipede grass are most commonly sold as *plugs*, which are small plants, sprigs, or stolons (ask for planting advice from wherever you buy the plugs) or as sod (see the next section).

TABLE 11-2 Warm-Season, Southern Grasses

Type	Appearance	Ideal Mow-to Height	Description and Care
Bermuda grass	Blades are medium-to-fine-textured and medium green	¾ to 1½ in (1.9 to 3.8 cm)	This one is drought-tolerant — you can get away with infrequent, deep waterings. Tolerates poor and sandy soil; doesn't do well in shade. If it's happy, it can become downright invasive, spreading a little too quickly into areas where you may not want it. Best mowed with a reel mower (a rotary mower can't cope with the wiry stems).
Bahiagrass	Very coarse-textured and tough, with a low, rambling, open growth habit	2 in (5 cm)	Deep, infrequent watering is best; tolerates some drought. Excellent for high-traffic areas because of its natural toughness (even seaside — some varieties tolerate salt). However, that same quality makes it hard to mow — a very sharp reel mower is best.
Buffalograss	Very fine-textured, grows low; color is grayish-green	2 to 3 in (5 to 7 cm)	Wonderfully drought-tolerant and withstands neglect/minimal maintenance. However, it goes dormant and brown if really stressed; to prevent this, water deeply twice a month. Best in full sun, does just fine in full sun and heat, shrugs at drought, and resists common lawn pests and diseases. Slow to green up in the spring, though. Also, not very dense in growth habit, so weeds can creep if you're not watching.
Centipede grass	Medium-to-fine in texture, light green in color, creeping habit	1 to 2 in (2.5 to 5 cm)	Not very drought-tolerant; give it regular soakings (it's shallow-rooted and dries out if you wait too long). Can take some shade, resists pests and diseases well, doesn't need much fertilizer or fussing; tolerates poor, acidic soil. However, it doesn't withstand foot traffic that well and is one of the first warm-season grasses to turn brown as winter approaches.
St. Augustine grass	Broad, dark green blades with medium to coarse texture; forms a thick, dense turf	1½ to 2½ in (3.8 to 6.3 cm)	The surface runners *(stolons)* that supply the fast growth also demand plentiful and regular water. Really tough and durable! Able to handle heat, sun, shade, and exposure to salt. So what's the catch? Its thick growth makes it susceptible to thatch and pests and diseases. Also, not very cold-tolerant. Best in well-fertilized, well-drained, alkaline soil.
Zoysiagrass	Wiry, dark-green blades of fine to medium texture	1 to 2 in (2.5 to 5 cm)	Needs plenty of water when getting started, much less when established. The stiff, wiry texture makes for uncomfortable barefoot walking. Wonderfully drought tolerant after established. Able to take almost any soil or exposure, withstands salt spray. Goes dormant and turns brown early in winter and is slower than most to green up in spring.

REMEMBER

To sow a new lawn — or do patch repairs with seed — make sure you start at the right time. Up North, with cool-season grasses, the ideal time's in the fall. Another plus is that competing weeds aren't as active as they are in the spring. The ground is still warm, and fall rains may help with keeping the ground moist for better germination. Late spring is also possible, so long as the new lawn has a chance to get up and running before hot weather hits. Warm-season grasses are best sown in the mild days of late spring — again, you want to get it going before blazing summer heat arrives.

To prepare the soil, follow the instructions earlier in the chapter (see "Preparing your yard for a lawn"). Basically, you want to clear out an open area of weeds and obstructions, add some organic matter, and rake it neat and level. Before planting is also the perfect time to put in sprinklers or some more-elaborate in-ground watering system. Chapter 4 gives more details on this kind of equipment.

Buy good-quality seed. If a bag simply says *Kentucky bluegrass,* be forewarned that it may be a grab-bag of older varieties. Better to get a bag that touts its contents in loving detail, naming the names of the varieties it includes. You're likely to see the following choices:

- **Straights:** Only one kind of grass, or only one variety; St. Augustine grass and bermudagrass are often sold this way.
- **Blends:** Up to four different varieties of one type of grass; for example, a tall fescue blend may include more-or-less equal amounts of the tall fescue varieties 'Virtue,' 'Monarch,' and 'Duster.'
- **Mixtures:** Combinations of different types of grasses; for instance, Kentucky bluegrass is often mixed with some fine fescue and perennial ryegrass. Make sure your mixture is not loaded with cheaper, coarser grass varieties — read the label carefully!

TIP

Some varieties are disease resistant, drought or heat tolerant, which can be desirable in certain regions of the country where these issues are prevalent. I recommend you consult a knowledgeable professional person at your garden center who is familiar with local conditions and thus what varieties perform best in your area.

How much seed to use

As with calculating the amount of fertilizer to spread, you need to know the square footage of your lawn. (So spend a moment to figure that out — you know, length × width, or the radius squared × pi. If you can't remember this elementary-school math, get a smart kid to help you — bill it as a practical lesson! By the way, if you know your yard size in acres, 1 acre equals 43,560 square feet.) If you're working with the metric system, you may need to refer to the Appendix to calculate what you need. Then consult the bag of seed to find out how much is recommended, or check out Table 11-3. Don't plan to overdo it — excessive seed only makes a weaker lawn: The seedlings are all fighting for limited soil space, nutrients, and light.

TABLE 11-3 Grass Seed Amounts and Time until Germination

Type	Pounds per 1,000 Square Feet	Days to Germination
Bentgrass	½ to 1	6 to 14
Bahiagrass	6 to 10	18 to 28
Bermudagrass	2 to 3	10 to 30
Centipede grass	1 to 2	15 to 25
Fine fescue	3 to 5	7 to 14
Tall fescue	6 to 10	7 to 12
Kentucky bluegrass	1 to 2	14 to 21
Perennial ryegrass	4 to 5	5 to 10

How to spread seed

You need the help of some sort of tool so the seeds spread as evenly as possible. Buy this tool at a home-and-garden supply store; for bigger jobs, you may prefer simply to rent the necessary equipment or hire someone else to do the job. Generally, though, here are your choices in approach (see Figure 11-1):

- **Cyclone spreader:** This hand seeder is relatively cheap and easy to use. Dump in the seed and then trot along the seedbed, turning the handle as you go. The seed sprays out in a semi-circular pattern. Obviously, this method isn't very practical for larger lawns, but it's just fine for modest-size ones.
- **Rotary spreader:** A wheeled or handheld spinning spreader (also known as a *broadcast* or *centrifugal spreader*) is perfect for bigger lawns. You just fill it up and walk along slowly, pushing it at an even pace.
- **Hydroseeding:** This technique involves spraying the yard with a mixture of grass seed, water, fertilizer, and mulch. Most people hire someone to do the work for them. Hydroseeding is usually less expensive than sod but costs more than regular seeding. Many times, people lay biodegradable netting on steeply sloped areas before they're hydroseeded to prevent erosion. This technique is usually very successful as long as you keep the seeded area damp.

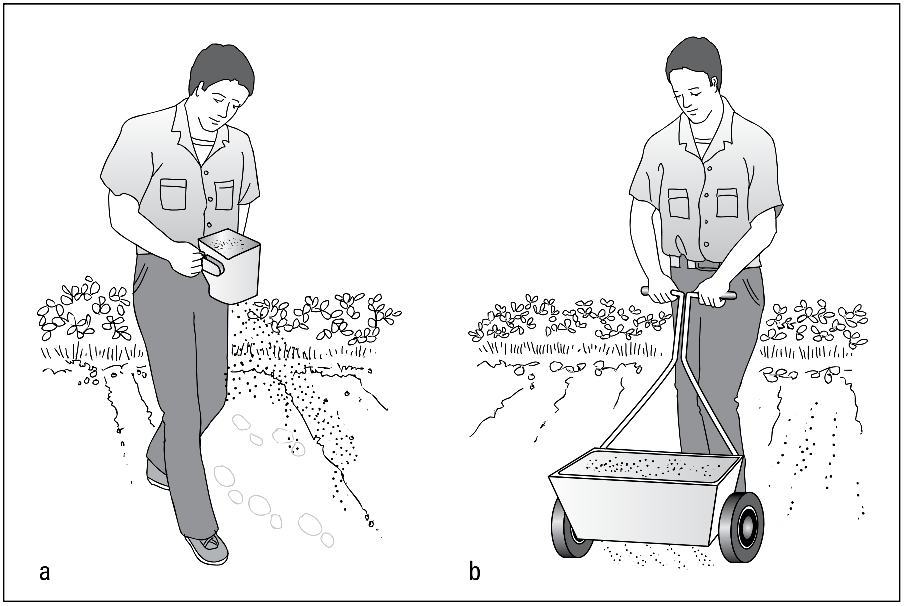


FIGURE 11-1: Spreading seed with cyclone-type (A) and rotary spreaders (B).

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No matter how you spread the seed, start by applying two side-by-side header strips at the bottom and top of the lawn first to provide turning space (see Figure 11-2). The header strips should run along the short edges of a rectangular lawn. If your lawn is round, oval, or irregular in shape, just do the perimeter (see Figure 11-3).

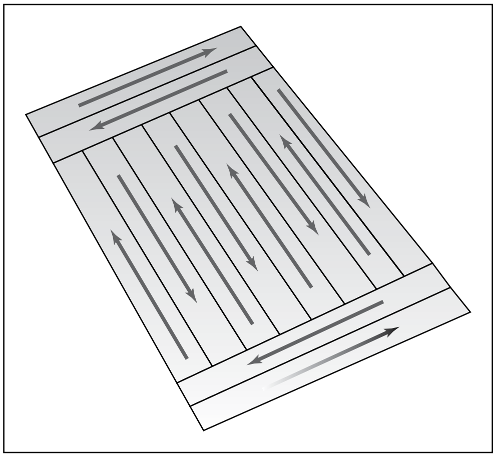

FIGURE 11-2: How to spread grass seed in a rectangular-shaped lawn.

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Go back and forth the longest way until you've finished applying seed. Shut off the spreader occasionally to prevent double applications. For instance, shut it off in the header areas, when approaching and leaving a tree, when backing, when turning around, and anytime you come to a complete stop.

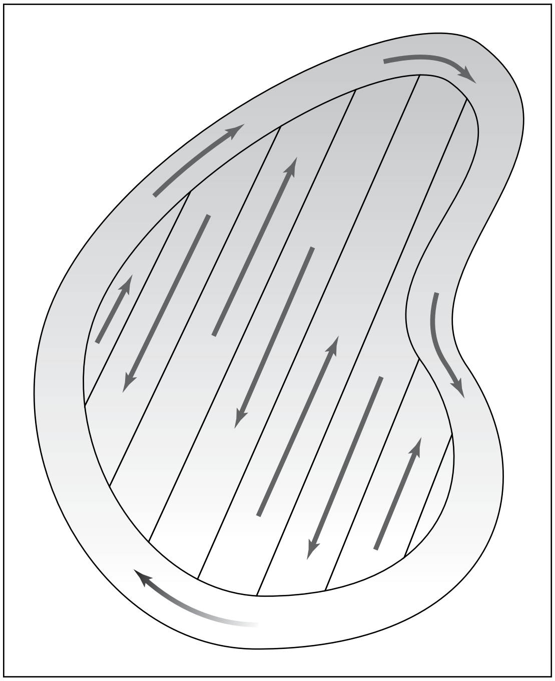

FIGURE 11-3: How to spread grass seed in an irregular-shaped lawn.

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Your own turf: Growing lawns from sod

The real advantage of using sod is that it's fast! It also smothers weed seeds. After being laid down, it's not as vulnerable to birds, foot traffic, or drying out. It's also easier for getting a lawn going in shade or on a slope. However, sod is much more expensive than sowing seed, and for some gardeners, it feels like cheating!

You can lay sod just about any time, so long as the ground isn't frozen. However, the best time is right before your chosen type of grass is about to surge into its peak growth period. So for cool-season grasses, try to lay sod in early fall or early spring; for warm-season grasses, mid to late spring is ideal. If rain is in the forecast for *tomorrow*, plant sod *today!*

TIP

Have bare ground ready to go. It should be moist to best receive the sod — too dry is unwelcoming, and too soggy or muddy is no good, either. Use a sturdy steel rake and give the ground one last, neat leveling before you begin.

Check around with your local suppliers for the best deal on the best type of sod for your area, and buy the sod as close as possible to when you want to use it. Sprinkle it with water to keep it moist and cool, but don't make it drippy and soggy (it'll just tear if you do that). Never let it sit around for more than a day if you can help it! Ideally, pick it up the night before and plant it the very next morning.

Here are some recommended tools for laying sod — see also Figure 11-4:

- A strong, sturdy steel rake
- A sharp knife, for cutting pieces and patches
- A board to kneel on so you don't squash the sod with your knees
- A hose and sprayer, to keep the sod moist as you work
- A wheelbarrow, to transport sod
- A water-filled roller, to smooth the lawn at the end of the job

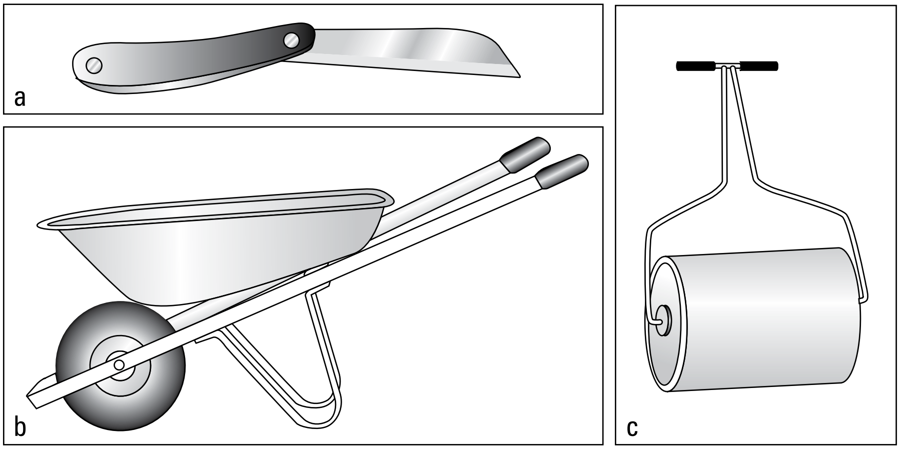

FIGURE 11-4: Sod-laying equipment.

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To lay the sod, rolling out the green carpet isn't necessarily hard or complicated work, but you do have to work fast so the sod doesn't dry out. And if your lawn is big, the sod rolls can be heavy and unwieldy. Line up some helpers.

TIP

Here are some tips for sod-laying success:

- Keep things damp! At no time in the process should the sod be allowed to dry out — and when it's finally down, soak the daylights out of the new lawn!
- Place edges tightly against boundaries and edges.
- Stagger the ends of the sod pieces, as if you were laying brick.
- Keep leveling the area with the rake as you go.
- Water *every day* (or more often if the weather turns hot) — frequent light waterings help the sod establish itself.

If all goes well, the roots start growing into the new soil in about a week.

Some warm-season grass varieties are available as sprigs and plugs, which are kind of like small chunks of sod. Plant these pieces at the recommended intervals and firm them in place quite well. Keep the soil moist until they're established. You may start fertilizing about a month after planting. Ask your supplier for details.

Watering a Thirsty Lawn

Watering is the *most* misunderstood aspect of lawn care, so pay attention, folks! Lawn grasses are *not* notoriously resilient or deep-rooted, so you can't neglect them in this department. Of course you have to water them often when they're first installed and are getting established — up to twice a week, depending on the type of grass and your climate. Established lawns need water whenever they get dry, which likewise depends on temperature, humidity, amount of sunlight, wind, and soil type. The following sections give you some more information on how to water well.

REMEMBER

Whenever possible, water your lawn in the morning hours, certainly before lunch. At this time, you probably have residual moisture or dew from overnight, and water soaks in better on slightly damp ground. Also, this timing gives the lawn a chance to absorb the drink in the warmth of the sunny day (a drenched lawn at night, especially a humid night, is an invitation to disease). Also — as you may remember from long-ago science class — water and sunlight work together to fuel photosynthesis and subsequent plant growth. Help your lawn do what it needs to do: grow.

Getting the water balance right

Figuring out the details about watering can be kind of a juggling act, but you can at least avoid the extremes. Gardeners know of some classic, telltale signs that an established lawn is crying out for water. Don't let it get to the point of a crisis. Here are the signs that your lawn is a bit parched:

- When you walk on it or somebody rides a bike over it, the lawn grass shows the marks — that is, it doesn't bounce back.
- The color changes. Once shiny green, the blades now look rather dull; they may even get a smoky, gray-blue color. Yikes!
- You plunge in a stick, screwdriver, or soil-moisture sensor to a depth of at least 6 inches (15 cm) and two things happen: It doesn't go in easily, and it comes up dry.

WARNING

Grass certainly needs regular waterings (whether from you or Mother Nature), but on the other hand, overwatering can be dangerous because it

- Deprives the roots of needed oxygen
- Causes wasteful runoff, sometimes carrying soil and fertilizer with it
- Destroys soil structure
- Encourages disease activity

When you do water, how much water to use is something you figure out on the job. I have no universal answer here, because so much depends on the type of grass, the setting, the type of soil, and your climate (including how often it rains). However, a general rule is between 1 and 1½ inches (2.5 to 3.8 cm). Water more when the weather's hot and less when it's cool. The object is to wet the entire root zone but not saturate it. This concept is especially true on heavy clay or *loamy soil* (rich soil with mixed particles).

After you successfully wet the entire root zone, observe how fast the lawn absorbs the water so you know how often to water. Generally, you want to let the soil dry out between waterings. Shallow-rooted grasses, naturally, get thirsty again sooner than deep-rooted ones. It's in your best interest (less work for you; a healthier lawn) to encourage deeper root growth by not underwatering. Once or twice a week should do the trick.

REMEMBER

Frequently cut, shorter grasses dry out faster than ones that you let grow a little taller between mowings. The longer leaves of some grasses shade the ground, slowing down water evaporation.

Boosting watering efficiency

Here are a few ideas to help you get the most out of your lawn-watering, reducing waste and saving on your water bill:

- If the lawn gets soaked and runoff starts, you can intervene right away. Keep busy in other parts of your yard and check back for runoff every 15 minutes or so.
- Water slowly. Water runs off if you put it on too fast, especially on parched ground.

  If runoff starts and you turn off the hose and check saturation depth, only to find that the water hasn't soaked in deeply enough, don't worry. Try the 15 minutes on, 15 minutes off method until you can verify that the water has succeeded in reaching at least 6 inches down.
- Yank out weeds and other encroaching plants. Weeds suck water away from the lawn.
- Mulch any adjacent bare or open areas of soil to reduce evaporation.
- Make sure you don't have any leaks at connections, including the originating faucet and in the line(s).

Fertilizing Your Lawn

A lawn is a dense gathering of many plants, clamoring for nutrition. Even if your yard is blessed with wonderful, organically rich soil (you've put in a lawn over a former farm field or barnyard, say), over time, it won't be enough. The lawn will grow thinner with each passing year.

A well-fertilized lawn grows densely and is healthy. And a healthy lawn, like a healthy person or a healthy pet, is strong enough to resist disease and pests as well as environmental stresses. If you don't want your lawn to cause you trouble, don't neglect fertilizer. Fertilizing your lawn is pretty straightforward, really, and the following sections explain how to do it.

WARNING

Never apply fertilizer without water. Water dilutes it appropriately and helps deliver it to the roots, where the grass can put it to good use.

REMEMBER

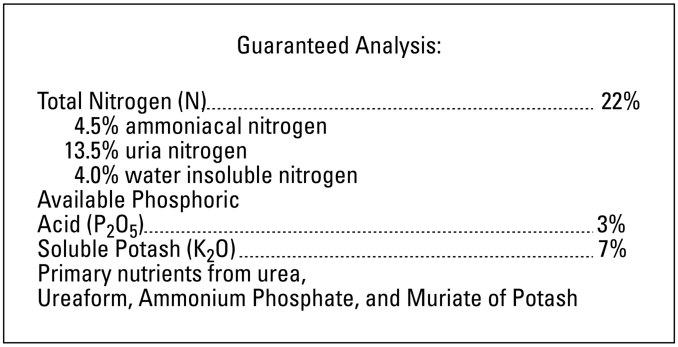
Many common weeds adore infertile soil. Indeed, that preference may lend itself to a good definition of a *weed:* an opportunistic plant that grabs and dominates this niche. If you underfertilize your lawn, the secret will get out, and weeds will run right over the top of it to colonize the area.

Deciding on the kind of fertilizer

As you may know, fertilizer contains three main elements (nutrients) critical for good plant growth — nitrogen (N), phosphorus (P), and potassium (K). Nitrogen is the one that enhances foliage and stem growth. That's why nitrogen dominates lawn fertilizers. Common formulations include 22-3-7 and 21-0-0. Chapter 4 covers garden fertilizer in some detail, but here I discuss fertilizer that's strictly for lawn use.

When you go shopping for lawn fertilizer, read the labels very carefully (see Figure 11-5). You'll probably find three types:

- **Quick-release lawn fertilizer:** With this fertilizer, you get a gratifyingly quick response; the lawn greens right up after application. However, because the lawn consumes it quickly, you have to apply frequent subsequent doses.
- **Slow-release lawn fertilizer:** This plant food supplies the same nutritive benefits as quick-release fertilizer but not as quickly. You can expect consistent, sustained growth, and you don't need to apply it as often. This type is generally more expensive, but because it does its job longer it's usually worth it.
- **A mix of both:** A mixture of quick-release and slow-release fertilizers lets you have the best of both worlds.



Guaranteed Analysis:

Total Nitrogen (N).. 22%
4.5% ammoniacal nitrogen
13.5% uria nitrogen
4.0% water insoluble nitrogen
Available Phosphoric
Acid (P_2O_5).. 3%
Soluble Potash (K_2O).. 7%
Primary nutrients from urea,
Ureaform, Ammonium Phosphate, and Muriate of Potash

FIGURE 11-5: A typical lawn fertilizer label.

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Most commercial lawn fertilizers are inorganic (synthetic); but you should know that as far as the plants are concerned, the nutrients are the same. Yes, inorganic fertilizers are manufactured chemically; they come in granules, powders, and liquids and are fairly inexpensive. And yes, people worry that they damage — or at least don't enhance — soil biology. But especially for lawns, constant renewal of the organic content isn't so easy (you're not digging it up every spring like the vegetable garden). Synthetic fertilizers are easy to get and use, and they may turn out to be your choice out of sheer convenience.

Organic fertilizers include things like fish emulsion and manure, which you dilute and spray on the lawn or apply and water in. Sometimes they're a bit smelly, at least immediately, but they're not something any red-blooded gardener would recoil from. Natural fertilizers often contain trace amounts of other elements, but these elements aren't desperately needed in most garden soils. At any rate, the advantages of organic fertilizers are clear: the improvement of soil texture and slower, more measured action.

REMEMBER

Assuage your guilt, if any, over choosing the inorganic lawn fertilizer by using it properly and responsibly. And realize that abuse of either organic or inorganic fertilizers can cause serious problems in the environment. Here are some of the problems excess fertilizer can cause:

- **Damage to the lawn itself:** There can too much of a good thing. Excessive nitrogen burns your lawn (the grass literally looks torched). Or the fertilizer may inspire overly lush growth, which is an open invitation to lawn diseases and hungry lawn pests. Fast, lush growth has another downside — you have to mow a lot more often!
- **Damage to the environment/watershed:** Don't be wasteful! Water runoff carrying nitrogen-laden fertilizer pollutes groundwater, streams, lakes, rivers, and marshes — even estuaries and the ocean if you're in range. Blooms of algae can occur, water plants can be damaged or have their growth habits altered, and the changes can adversely affect animals that live in these places and depend on these foods. And don't forget — to make water safe for drinking, water treatment facilities have to deal with any contaminants that end up in your rivers, reservoirs, lakes, and streams.

TIP

Sandy soil alert: Nitrogen travels quickly through lighter, quick-draining soils and leaches away. You don't have to forgo feeding your lawn, but be careful. Try applying half as much, twice as often, or use only slow-release lawn food.

Knowing your serving sizes: How much fertilizer is enough

To determine how much fertilizer to use, you have to read the label on the bag or container and follow the application directions *to the letter.* All recommendations are based on 1,000 square feet of lawn (go out and measure). Generally speaking, the typical dose never exceeds a pound per 1,000 square feet of lawn. Like aspirin, more fertilizer is *not* better — for the lawn or the environment!

Checking out the fertilizing schedule

Most importantly, correctly timing when you fertilize your lawn is paramount. This section discusses the schedule in greater detail.

Before you decide when to fertilize, you need to know when *not* to fertilize your lawn. For example, don't bother in the winter or off-season. Let a sleeping (or dormant) lawn lie. And don't feed in especially hot weather. Grass plants respond to the stress of blazingly hot days by slowing down their growth, and a jolt of fertilizer during this time isn't a good thing. That pretty much leaves spring and fall. You may also feed during the summer months, depending on the weather and the type of grass.

Here's a cool-season grass feeding schedule:

- **The minimum:** Once in the fall; this schedule keeps the grass plants growing longer, encouraging root growth and thus providing the reserves the grass needs for quick green-up when spring rolls around again.
- **A little better:** Once in the fall and again in late spring; the early or late-spring feeding jumpstarts the new season (don't go too early, because you get overly lush top growth at the expense of root growth, plus you may inadvertently fuel a burst of young weeds).
- **Pampering:** Start in late spring and repeat at regular intervals into fall, perhaps every six to eight weeks during active growth; hold off in midsummer if the weather's really hot.

And here's your warm-season grass feeding schedule:

- **The minimum:** Once in late spring; this feeding sends the grass into the height of the growing season well-fueled.

- **A little better:** Once in late spring and again in late summer/early fall; the second, later feeding is intended to send the grass into winter in good condition.
- **Pampering:** From late spring through late summer/early fall, every six to eight weeks during active growth; suspend fertilizing in midsummer if the weather's really hot or you're having a prolonged drought.

See the section, "Warm-season and cool season grasses," earlier in this chapter, for details about the types of grasses these schedules apply to.

Mowing the Lawn, Cutting the Grass, and Otherwise Giving the Yard a Trim

Mowing the lawn may be a necessary task, or you may relish the sweet scent of freshly mown grass. But no matter how you feel about it, it has to be done. Everyone can agree that a mown lawn looks better than the alternative — a rangy, overgrown neglected patch.

Mowing also has a purely practical side: It maintains your lawn's health. Mowing regularly

- **Helps fight weeds:** Mowing helps prevent weeds from germinating and invading. How? Mowed at the right height, lawn grass shades out both weed seeds and seedlings. If weeds begin to grow, mowing chops off their heads before they go to seed, thwarting their drive to grow and mature and spread.
- **Makes the grass grow more densely:** Well, you know how when you pinch off the tip of a houseplant, it reacts by producing more-lush growth lower down on the plant? The same principle is at work when you mow and remove a grass blade's growing tip — the plant is inspired instead to spread out.

Basically, mowing turns grass into a lawn. Read on for some advice on the act of mowing and the basic mowing equipment.

How often you should mow depends — surprise, surprise — on how fast your grass grows. You'll be busy in the height of the growing season, to be sure. Three key factors affect growth rate:

- **The time of year:** Warm-season grasses grow fast in the hot summer months. Cool-season ones are motoring during spring and fall (summer's heat slows them down).

- **The amount of water:** More water equals more grass equals more mowing. If you're sick of mowing, cut back on watering. But be careful; if you cut back too much, your lawn may show signs of distress or go brown and dormant (refer to the section, "Getting the water balance right," earlier in this chapter).
- **The amount of fertilizer:** More nitrogen and more lawn food equal more grass and more mowing.

WARNING

Don't mow when the grass is wet. This advice holds even if you don't have an electric mower (and especially if you do). Wet grass is tough to mow; it mats and mushes and cuts unevenly. It tends to shred rather than cut. The clippings settle in damp globs, smothering the grass. It also rots with a rank smell! Later, when things are dry, you find out your hard work resulted in what looks like a very bad haircut. Also, cutting wet grass promotes the growth and spread of lawn-disease organisms. Not worth the trouble, not worth the risk!

How high to mow varies by grass type. In general, though, warm-season grasses spread out as they grow and may be mowed at a lower height, whereas cool-season ones, owing to their more upright growth habit, are better off cut higher. Don't get too concerned about these requirements, though. Figure 11-6 gives you an idea of where to start, but ideal mowing heights are just that: ideal. (For a general list of ideal mowing heights, see the section, "Cool-season and warm-season grasses," earlier in this chapter.) Do the best you can, and of course, watch how your particular lawn responds to your regimen. You'll get into a groove.

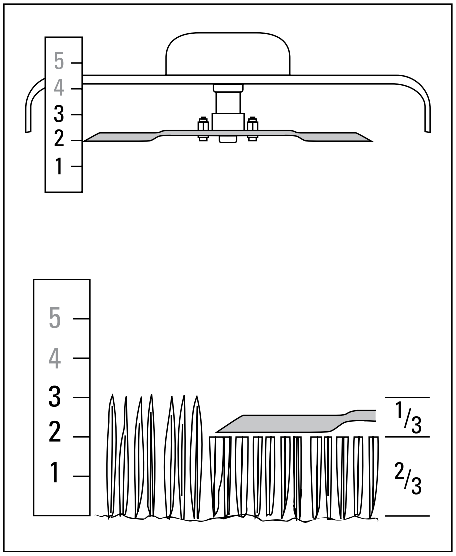

FIGURE 11-6: Setting mower height.

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REMEMBER

Adjust your mowing height according to the weather. If temperatures are really high, let the grass be taller; short haircuts are for cooler weather. Longer grass is better able to cope with the stress of drought and heat.

TIP

Suppose heavy rains inspire a burst of growth, or you go away on vacation and the lawn gets a little out of control. It happens. Don't fret. Respond with a two-part attack. The first mowing, set the blade higher than usual and go to it, mowing only some of what you really need to (and you may need to do some raking after). Follow up a few days later with a second mowing at the proper or usual height.

Battling the Weeds

The reason you can get weeds in and around your lawn is the same reason your lawn grows there — it's open and it's sunny. Even if you're a wonderful lawn steward, totally eradicating these pesky invaders is nearly impossible. But as in other parts of your yard and gardens, you can work things out so you still enjoy and feel proud of the plants you planted.

The main thing to understand here is that although lawn grass is a perennial, many lawn weeds are not — they're annuals. This information can color your battle; forewarned is forearmed!

Common lawn weeds include dandelion, plantain, crabgrass, dock, English daisy, ground ivy, moss, henbit, oxalis, and yellow nutsedge.

Add the information in the following sections to your weed-battling arsenal.

Preventing lawn weeds

You may never be able to completely eradicate weeds, but you can take action to prevent them. Good news — in point of fact, ideal lawn conditions and perfect weed conditions aren't exactly the same. So to try to get the upper hand, follow these tips:

- **Provide and then nurture good ground.** Grass likes fertile, loose, middle-of-the-road soil, and many weeds do not. Weeds like poor, compacted soil. Some like it soggy; some like it parched. Any way you can nudge your lawn area toward the good and the moderate can help.
- **Mow often.** This move chops off the weeds at the knees. In particular, you want to the thwart the development of flowers (and definitely the seeds or seed heads that follow — that's how weeds love to reproduce).

- **Mow at the right height.** If you scalp your lawn grass too short, weed seeds and seedlings suddenly get the light they need to grow. Longer is better, in this case. The grass will shade them out.

Treating already-weedy lawns

Having too many weeds in a lawn is more than a call to arms; it's a wake-up call. Something isn't right if they're winning. A healthy grass grows faster than weeds. If you keep on mowing, regularly and diligently, the grass begins to win. On the other hand, you can and, frankly, will have to live with a few. To get rid of the weeds you already have, follow these tips:

- **Assess and correct.** If your lawn were healthy, you wouldn't have so many weeds, and that's the truth. So what's wrong? Are you not watering or feeding enough, which stresses the grass and eventually leads to sparser growth and areas where weeds can sneak in? Are you mowing too low, which allows weeds to germinate? Go read the earlier basic care sections on watering, fertilizer, and mowing to see what you can figure out.
- **Hand-pull.** Yank out weeds one by one each time you pass by — be sure to get all of the root system — or try an all-day assault. If you get the kids to do it ("What'll you pay me?"), teach them the importance of getting out the entire root system. You may be able to purchase a tool for digging dandelion roots out in their entirety.

REMEMBER

- **Consider weed-killers.** But don't take herbicides lightly, no matter how frustrated and annoyed you are. You have to examine environmental and toxicity and safety issues. You don't want to harm your lawn or other garden plants in the process (or people and pets who may wander out there). Getting the right weed-killer for the job and applying it properly and especially *at the right time* are key. (Pre-emergent herbicides, which are somewhat less toxic, are used early in the year, before the weed seeds germinate; post-emergent ones damage and kill growing weeds, some through the leaves, some all the way down through the root system. Corn gluten, an organic pre-emergent, is applied in the fall.) Get your enemy weeds properly identified, read labels, ask questions, and be careful if you decide to go ahead.
- **Get professional help.** Consult a lawn-care company and see what the workers say. A reputable company won't put a bandage on the problem by applying an herbicide without talking to you first about the conditions that allowed weeds to prosper. Make sure you know what chemicals they're applying and why.
- **Renovate.** Now may be the time to take out that sorry lawn and start over. Check out the info in the section, "Making a Lawn from Scratch," earlier in this chapter.

Or rather than try to get rid of the weeds, you can live with them. Who is your lawn's worst critic? Why, you are, of course. Stand back — across the street, or over in the driveway, say — and look at the lawn. Is it generally thick and green at this vantage? You don't want to surrender (you can still hand-pull whenever you have the time and inclination), but perhaps you can reach a truce and even start to appreciate some of the diversity in your yard. Some people consider clover a weed, but it adds nitrogen to the soil, feeding the grass; besides, you may get lucky and find a four-leaf clover!

IN THIS CHAPTER

- **Checking out tree types and picking out the right tree**
- **Planting and caring for trees**

Chapter 12

Reaching New Heights with Trees

A *tree* has a single main stem, and the branches appear higher and spread outward. Trees are normally the biggest and longest-lived plants in yards, which is why giving serious thought to their selection and placement is so important. A mistake costs a lot of time, not to mention expense. Conversely, a correct choice adds immeasurably to the good looks of your home and yard, to your comfort, and ultimately to the value of your property.

For your *deciduous* (ones that lose their leaves in the fall) trees and evergreen types, shopping tips, and advice on planting and care, read on. For specific information on the planting and care of fruit- and nut-bearing trees, see Chapter 18.

Knowing Your Trees

If you're shopping for a tree or just trying to figure out what to do with one you've inherited in your yard, a basic understanding of its characteristics can help you out. Tree come on all shapes and sizes, including the following (refer to Figure 12-1):

The object is for the tree to enhance your property, so you really need to know your options, which I cover in the next few sections.

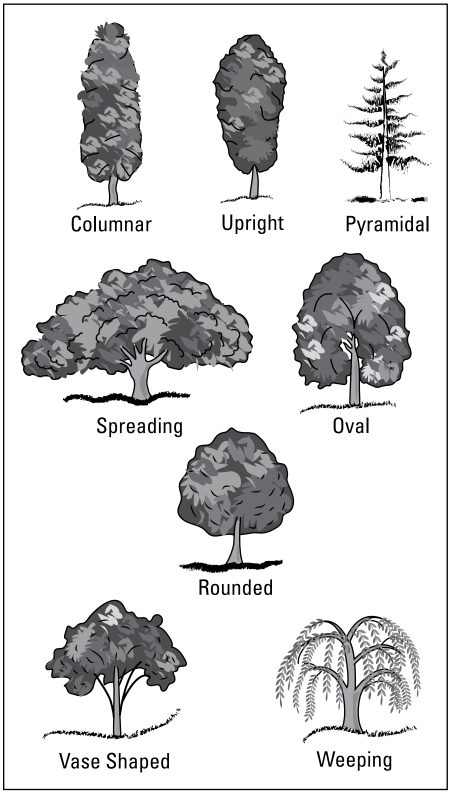

FIGURE 12-1: Tree shapes.

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Exploring evergreen trees

People often refer to all evergreens, including Christmas trees, as pines, but of course, the truth is that they're so much more than pines. The term frequently refers to trees with needles — but this case is not always so (see "Broadleaf evergreens"). Calling them *conifers* (cone-bearing) covers much of what the experts classify as evergreens, but again, not all.

TECHNICAL STUFF

In botany, *evergreens* are plants that don't lose their leaves or needles all at once on a yearly basis like deciduous trees do in the autumn. By this definition, most tropical plants are evergreens, and some conifers, like the larch and the bald cypress, are deciduous because they shed their needles each year. Small wonder that this term is confused!

REMEMBER

Always find out what the mature height and girth of an evergreen is and how mature it is (15, 20, 30 years, and so on) before you commit yourself to planting one. Even if the tree grows slowly, say, only a few inches per year, you may find in time that the tree is wedged too close to the house or is banging its head on an overhanging eave. You can slow down an evergreen's growth rate somewhat by not pampering it (reducing water and fertilizer) or placing it in a less-than-ideal spot, but why stress the tree? You're better of making a match between site and plant.

Needled evergreens

Good landscape trees in the needled group include pines, spruces, cedar, arborvitae, larch, fir, Douglas fir, dawn redwood, juniper, and yew. (***Note:*** Larch trees and dawn redwoods are unique — their needles yellow and drop in the fall, and the trees generate fresh ones every spring.) Table 12-1 breaks down the common needled evergreens.

TABLE 12-1 Common Needled Evergreens

Type	Characteristics
Fraser Fir (*Abies fraseri*)	Its needles are short and durable with open, well-spaced branches.
Scotch Pine (*Pinus sylvestris*)	Sturdy branches are dense and tightly spaced.
Douglas Fir (Pseudotsuga menziesii)	Sweet-smelling blue-green foliage is fuller and thicker than a Fraser.
White Pine (*Pinus strobus*)	It retains its long, soft, bluish needles well.
Leyland Cyprus (*Cupressus leylandii*)	It has delicate, feathery forest-green to bluish-green branches.
Concolor Fir (*Abies concolor*)	Its flat, silvery-blue and bluish-green needles smell faintly of citrus.

Within these groups, you can choose from many attractive variations, as you can soon see if you visit a good nursery. You have no need to get the plain old (species) forest tree when you can get a descendant or variety that grows shorter and neater or has handsome, distinctive bluish or golden needles or bears shorter or longer needles.

Regular shearing (which I discuss more in Chapter 13) can keep a needled evergreen in the size and shape you want. However, picking a tree that fits your chosen spot will save you maintenance work.

Dwarf needled evergreens

You can look into a whole class of evergreens called *dwarf evergreens* or *dwarf conifers* that are worth considering, especially if your yard is small. These trees often range from tiny little 6-inch tufts to knee-high miniature trees. If you have the space and the inclination, a grouping of dwarf evergreens, perhaps coupled with some judiciously placed rocks, can make a splendid display. Dwarf evergreens also make nice hedges, boundary plantings, foundation plantings, and path side edgings.

Note: *Dwarf* can also mean small in relation to the regular tree of its type; a dwarf white pine (depending on the variety) may grow to 15 feet tall, which is, in fact, dwarfed by a regular white pine, which can grow 80 to 100 feet tall! That may not quite what you have in mind when you see that cute plant in a one-gallon pot. Read the label.

Broadleaf evergreens

Good landscape trees in the broadleaf group include Southern magnolia, holly, olive, bay laurel, madrone, toyon, ironwood, strawberry tree, live oak, and citrus. These trees are an outstanding presence in home landscapes. They have a settled and substantial look about them that's very appealing. Use one of these plants where you want a classic, even old-fashioned air of permanence. And yes, they generally hold their leaves over the winter months.

REMEMBER

Read the descriptions carefully: In very cold areas, the leaves of plants listed as semi-evergreen may fall, curl, or become discolored until spring, when fresh reinforcements are generated.

Unlike their needled counterparts, many broadleaf evergreens sport attractive flowers and fruits (or berries), so you may get some spring or early-summer glory. And some broadleaf evergreens even provide colorful late-season interest that can rival the changing colors of deciduous trees. To make the most of this quality, make sure late frosts don't damage the buds (so pick a variety touted as cold-hardy in your area) and also ensure that you don't inadvertently prune off the show before it begins (read the later section called "Life and limb: Pruning judiciously").

TIP

Broadleaf evergreen trees do best in soil that's slightly acidic. If you're not sure whether your yard offers the right growing conditions, get a soil test and amend the soil as recommended beforehand. An acidic mulch, such as chopped-up dried fall leaves from oaks or pine needles, also helps. (See Chapter 4 for more info on soil prep.)

Falling for deciduous trees

Good landscape trees in deciduous trees include certain maples, dogwood, beech, gingko, cherry, katsura, birch, linden, yellowwood, oak, tulip tree, buckeye, black gum, palo verde, sweetgum, aspen, and redbud. Consider all your options! Each of these trees comes in many different forms or varieties. A well-stocked nursery should offer many options.

Deciduous trees keep life interesting. They have a different appearance in every season — fresh new leaves in spring; often flowers in spring or summer; possibly a fall leaf-color change; and finally, a stark, architectural profile and perhaps interesting bark in the winter months. Many of these trees also bear fruit or nuts — see Chapter 18 for information on these types of trees.

Many deciduous trees end the gardening year in a blaze of glory, especially in colder-climate areas. Because you generally purchase young trees in the springtime, you may forget about fall color. But if autumn color is desirable, find out whether your chosen tree is known to put on a show. Some Japanese maples, for instance, are pretty but plain green-leaved trees all season until fall creates an astounding and spectacular change to crimson, orange, burgundy, or cherry red.

Favorite trees for spectacular fall color include some maples (especially Japanese and sugar maples), gingko, sweetgum, katsura, hawthorn, sassafras, crape myrtle, sourwood, and mountain ash.

By and large, deciduous trees tend to grow faster than evergreens, making them a good choice where you want faster gratification, faster results. Within the different kinds, or species, the speed of growth varies considerably — ask when you buy. Growing conditions are also a factor. If your site is stressful for a tree (poor soil, not enough light, windy, and so on), it won't perform as expected. Fast growers include willow, tulip tree, poplar, and gray birch.

Deciduous shade trees

One of the primary reasons for choosing a tree is shade. Its cooling shelter is something to look forward to, and the dappled light under its arching branches is something to savor on hot summer days. In time, a seat, bench, or table underneath may be in order. Sited near the south-facing side of your house, a shade tree can help cool the house in summer, saving you money on air conditioning. Choose wisely so your vision can come true.

REMEMBER

Get information on the ultimate mature size of any tree before you buy. If the one you thought you wanted is predicted to be too big for the spot, don't despair — ask about smaller-size options within the group or opt for a reasonable substitute. If the nursery staff's answers don't satisfy you, do a little research on your own.

The best shade trees are ones with a single, thick main trunk. Discover whether this growth habit is natural for the tree you have in mind; if it isn't, you can cut off side trunks while the plant is still young.

Consider what you want to grow under your shade tree. You can place the tree in the middle of your lawn when you first bring it home, but as it grows, you may find that the grass below becomes thin, scraggly, or dies back altogether due to the lack of sunlight as well as the tree's roots hogging the soil's nutrients and moisture. Down the line, then, prepare to underplant your shade tree with shade-tolerant grass or a shade-loving, drought tolerant groundcover. Or if you plan seating under the tree's shelter, maybe place nothing but mulched ground around the tree's base.

Trees with weeping habits are not ideal shade trees because their downward-swooping branches don't allow a person to stand under them comfortably, never mind underplanting or placing seating in its shade. Classic examples are weeping birches, beeches, and willows. These trees are lovely and still deserve to be grown but grow them in some spot where using their shade isn't important to you.

WARNING

All maples aren't the same. Some maples like sugar and red maple make excellent shade trees and can provide brilliant fall color, whereas other maples aren't so great. Probably the one with the worse record for weak branching leading to breakage is the silver maple. Stay away for this one. In fact, planting this tree is illegal in some areas.

Other undesirable shade trees include the following:

- **Norway maple:** It provides deep shade and a dense root system that nothing else can grow under; it prolifically reseeds itself and is prone to disease and limb breakage.
- **Boxelder:** It's a short-lived maple that grows fast like a weed because it is a weed. It seeds aggressively and harbors pesty insects, boxelder bugs.
- **Bradford pear:** It reseeds itself everywhere and has limbs that tend to break in storms.

Flowering deciduous trees

Get double the pleasure from a landscape tree when you choose one that flowers. Generally, the show is early in the gardening year, and generally, it doesn't last long. But that brevity doesn't mean you can't revel in its beauty. Favorite flowering trees include crabapple, dogwood, Japanese tree lilac, ornamental pear, flowering cherry, tamarisk, redbud, and fringe tree.

Depending on what's going on nearby or in the rest of your garden, the flower color of your flowering tree may or may not be a part of a larger display. An easy way to avoid a clash is to plant a white-flowered tree — or conversely, to favor white-flowered spring bulbs, perennials, and shrubs in the vicinity. But if you're daring, beholding some red tulips at the feet of a red-flowered dogwood or a redbud tree — or the Easter-egg hues of pink and purple hyacinths skirting a cherry tree — can be a real thrill.

CONSIDER KOREAN OR CHINESE DOGWOOD

You can find many fine flowering trees, but I suggest you check out the Korean or Chinese dogwood (*Cornus kousa*), one of the real standouts. Everyone loves the American dogwood, but that tree doesn't do well in drought, isn't hardy in some areas, and has a tendency to get various leaf diseases.

On the other hand, the Korean or Chinese dogwood has none of these problems, and it blooms prolifically every spring, later than its American relative. Because the showy parts of the tree are modified leaves (bracts), they keep their color for many weeks. They come in white- or pink-flowering forms, dwarf, or weeping, and you can even find a very striking form with green and white variegated leaves that's showy even when it isn't in flower. As a bonus, the tree has attractive, round, red fruit during the summer and early fall that birds enjoy and red or purple leaves in the fall. The soft pulpy fruit is edible and sweet with a taste like American persimmon. What else could you expect from a tree?

For best results, observe your new tree's flower color — and blooming duration — for one spring or two. That way, you can decide whether existing companions please you or whether you should install some good ones for *next* year.

Choosing the Right Tree for Where You Live

A classic mistake that eager homeowners make is choosing a tree based on looks alone. A tree is a significant, long-term investment, so make your selection carefully. Keep the following suggestions in mind as you select trees for your yard:

- **Start with native trees.** They're often a smart choice; they're already adapted to local weather and soil, not to mention they're probably resistant to common area pests or diseases. If which trees are native and which aren't isn't obvious to you when you go shopping, ask. Or better still, first visit a nearby park, botanical garden, or arboretum where trees are mature *and* labeled.

  Horticulturists breed or select cultivars of native trees, and these cultivated varieties are seen as variations or improvements on their wild forbears. Where available, they may be your best bet of all because they build off of natural adaptations.

- **Make a smart match with your soil.** If your soil is naturally dry, sandy, or quick-draining, don't choose a thirsty tree like a birch or a willow. Keeping it healthy and looking good would only become a major, and perhaps frustrating, project. Shop close to home — reputable local nurseries have plenty of stock that ought to thrive for you. If your chosen site has any special or unique conditions (boggy soil, say), tell the salesperson so she can assist you in making an appropriate choice.
- **Stay away of shedders.** Trees that dump leaves, seedpods, nuts, or cotton end up being a lot of extra work unless you're prepared to handle it. Examples include poplar, mulberry, cottonwood, willow, sweetgum, boxelder, Norway maple, eucalyptus, horse chestnut, and black walnut.

  REMEMBER

  What about a gingko? It has several desirable characteristics; it can tolerate urban pollution and has brilliant yellow fall foliage. Some folks also eat the nuts inside the fruit. However, the stinky fruit is difficult for some people to stomach. If you love this tree but don't care for its fruit, you can seek male or sterile forms that don't produce fruit.
- **Consider shade density.** If you prefer dappled shade (and hope to grow lawn underneath the tree), choose a tree with a lighter canopy. Examples include ash, birch, honeylocust, and linden. If you want dense shade, go for an oak or maple.
- **Think about drought resistance.** If your summers are long and hot, you don't want a new young tree to just dry out and die, even despite extra water and attention from you. Your ideal tree should have small rather than large leaves (this includes needles!). Leaves with less surface area conserve moisture better. The tree should also have deep roots that can travel to where sustaining moisture is. Good drought-resilient trees include Eastern red cedar, live oak, hickory, Kentucky coffee tree, honeylocust, persimmon, bur oak, pin oak, gingko, laurel, pines, mesquite, Aleppo pine, blue Atlas cedar, and jacaranda.

Getting Treed! Planting Trees

Trees take up space. Okay, maybe the sky's the limit with vertical space, but you have to account for the horizontal space — how big around, how broad, how spreading — that a tree requires. A tree in a crowded or cramped setting, or one that has outgrown its spot, runs the risk of becoming not only unhealthy and a hazard but also a sorry sight. A poorly planted tree is also a big pain the neck to chop back or remove, if it comes down to that. So plan ahead! The following sections give you what you need to know about planting trees.

Not just for Arbor Day: Deciding when to plant your tree

The best time to plant trees is spring. New, young plants are surging into growth and — assuming you plant your new tree or trees in a good spot and with care — are full of energy for the months ahead. In other words, spring planting corresponds favorably to a tree's metabolic cycle. Roots can grow, and the tree can settle in. A tree's a big plant, after all, and it needs all the time it can get to adjust to its new home.

Fall planting is the second choice. Fall may be the first preference for gardeners in parts of the country having a very early hot spring and summer. Fall is also ideal for transplanting if you live in an area where the weather is cool and damp. Do be sure to plant early in the fall so the trees have a chance to become established before very cold weather moves in and the ground begins to freeze.

Finding a suitable location

When trying to decide where to put a tree, first find out your chosen tree's mature size. Figure out the standard dimensions of the exact variety you've chosen. Varieties vary. For example, the handsome English oak *(Quercus robur)* in its "plain old species" form can reach 100 feet tall (30 meters), whereas a cultivar of it called 'Westminster Globe' gets to only about 45 feet (13 meters).

The information you need should be on the tag, on a sticker on the pot, or available from the garden center's inventory list (flag down a staffer). Or you can get it from reference books, in nursery catalogs, or with a little research online.

Assume the tree *will* get that big, even though research has suggested that tree-dimension results vary from place to place, from garden to garden, and from garden settings versus park or wooded settings. Better to overestimate than underestimate! Then read on for info on how best to place your tree.

Avoiding trouble spots

Trees are a long-term investment, and you're best off if you find them a good home in the first place. Put some thought into the place that's most likely to make your relationship with your tree a comfortable one.

Bring the info on the tree's mature size, and march out boldly into your yard or garden with your tape measure and some means of marking the outline (even a length of garden hose or heavy-duty electrical extension cord will do). Mark the spot, making a big outline. It doesn't have to be precise or perfect — this outline is for the purposes of eyeballing the tree's potential.

REMEMBER

Consider the following factors when you situate your tree:

- **The initial dig:** Assess your desired location to see whether digging there is possible and practical. Call your utility companies to have them mark where your phone, electric, gas, and sewer lines are before you make any decisions.
- **Root-system potential:** Where the roots will end up is a very good question, and tracking down the answer isn't always easy. But you're safe in assuming that the roots will eventually extend farther than the reach of the tree's branches (the *drip line,* landscapers call this).

  Some trees, such as willows are water lovers and they tend to thrive right by the septic system (where they can cause expensive damage). Keep trees away from septic fields. Other trees are shallow-rooted and may uproot the surface of a driveway or sidewalk if you plant them too close.
- **Canopy encroachment and leafy obstructions:** Know the ultimate height of the trees you're buying before planting them under utility lines. And remember that planting trees and shrubs close to the road can be hazardous! When placing these plants, provide yourself and visitors with adequate lines of sight when you're pulling in and out of your drive.

Make sure you take the time now to discover whether your tree's going to collide with your garage, shrub border, or driveway, or encroach on your neighbor's property as it grows — and to adjust your plans accordingly, either by scooting the projected site over by several feet or by switching your plans to a smaller tree. Mark the middle of the rough circle, because this place, of course, is where you'll dig your tree's hole.

REMEMBER

Figure out whether you'll want to do other substantial digging nearby. A strong, well-developed root system is critical to the health of a tree. Roots anchor the tree into the ground and are its lifeline in obtaining the huge quantities of water and nutrients that it needs from the soil (see Figure 12-2). Amazingly, most tree roots are in only the top 18 inches (45 cm) or so of the soil! This fact illustrates why you have to be careful not to damage trees' vital and vulnerable roots when digging nearby.

Designing to conserve energy and block the wind

Sometimes the addition of a tree, or trees, is practical as well as decorative. Not only do trees look attractive and provide a suitable support for your hammock, but they also filter pollutants from rainwater, reduce the amount of water that ends up in storm drains, decrease ozone, and put out a nice supply of free oxygen. Not too shabby! You can also use trees to help conserve energy by shading the house in the summer, letting sunlight in during winter months, and blocking the wind. Depending on what you want the tree to do, some trees are better candidates than others.

To shade the house in the summer, plant deciduous trees where you get southern or western exposure. If possible, try to shade the air conditioning unit. After the trees shed their leaves in the fall, they'll let the winter sun warm your house.

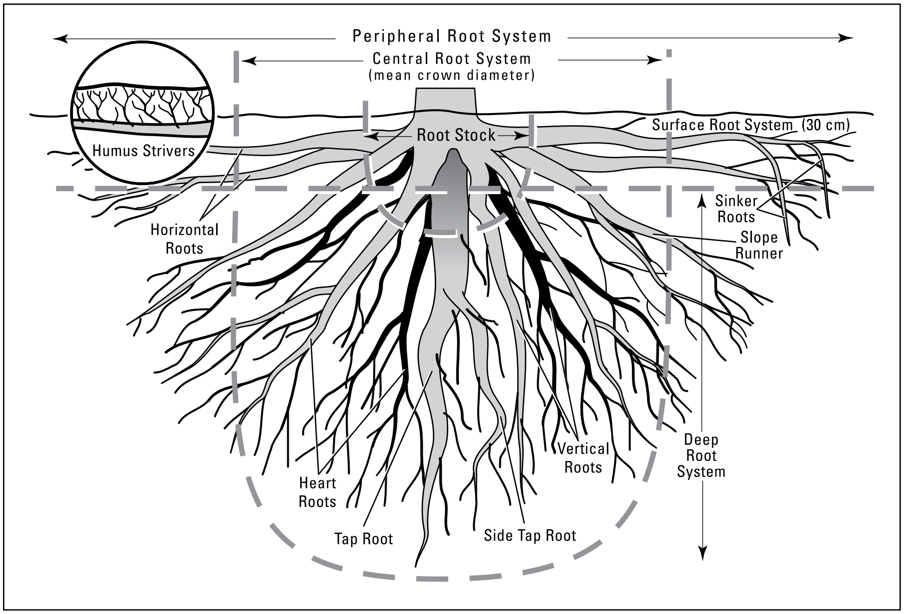
Peripheral Root System
Central Root System
(mean crown diameter)
Humus Strivers
Root Stock
Surface Root System (30 cm)
Sinker Roots
Slope Runner
Horizontal Roots
Deep Root System
Vertical Roots
Heart Roots
Tap Root
Side Tap Root

FIGURE 12-2: Examining the root system for a typical tree.

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Evergreens often serve as windbreaks to protect gardens, homes, and other structures. Ideally, a windbreak tree has certain useful qualities:

- It grows fast.
- Its branches and twigs aren't brittle.
- Its foliage is naturally thick.
- It develops deep roots or a taproot to help it remain anchored.
- It tolerates drought (because winds dry it out).
- In groups, it grows densely.
- It bends before it breaks.

Use a row of trees to block prevailing winds. Planting a double row of evergreens is sometimes more effective.

Planting your tree

Planting involves a point of debate. You may know that welcoming other new plants (say, a perennial or a rosebush) to your yard with amended soil is a good idea. The usual advice is to dig the hole and mix some of the native soil with some good organic matter, on the grounds that few of us have fabulous, perfect native soil in our yards. Should you do this for an incoming tree as well? Actually, no — not because digging a tree-size hole is a lot of work. And not because anyone assumes that your yard has fabulous, perfect native soil. A tree's roots are eventually going to expand well beyond the planting hole you make for them. They need to go deep and wide over time.

WARNING

If you make the initial hole full of wonderful, organically rich soil, tree roots may never journey beyond the bounds of your planting hole. And journey beyond it they must if the tree is to grow and eventually reach its mature size. So do the roots of your new tree a favor and don't coddle them with amended, improved soil in their youth. They have to adapt to their lot in life!

TIP

If you're installing a tree on a lot that was recently built upon, improving the soil *is* necessary. You can pretty safely assume that the soil is not only compacted (from all the construction equipment running over and over it) but also of poor quality. In fact, the topsoil may have been scraped off long ago, when the site was being prepared. That leaves subsoil, which is often lousy, poorly draining, and maybe full of rocks. Therefore, make all planting holes as big as you can (bigger than you would otherwise), remove all rocks and debris, and then backfill with a combination of that subsoil and some good organic matter such as topsoil, loam, compost, and/or dehydrated manure.

In the next few sections, I give you details on how to handle trees depending on how they come to you: as a balled-and-burlapped tree, a container tree, or a bare-root tree (see Figure 12-3). For now, though, here's the basic information you need on how to plant a tree. Just follow these steps:

1. **Lay a tarp on the ground (or position a wheelbarrow) near the planting site.**

   You can shovel or scoop planting-hole soil on and off the tarp as you work, thus avoiding making a mess of your lawn or planting area.

   WARNING

   Be careful when moving your tree to plant it. Yanking a trunk can break roots near the center or scuff tender bark (which invites disease and insects). Move it only by hefting the rootball. To get it from your vehicle to the planting site, use a wheelbarrow or put it on a tarp and drag the tarp over to the planting site. Gently maneuver it into the hole before snipping off any twine or carefully tug away burlap (leaving it on until then protects the rootball from damage or drying out).

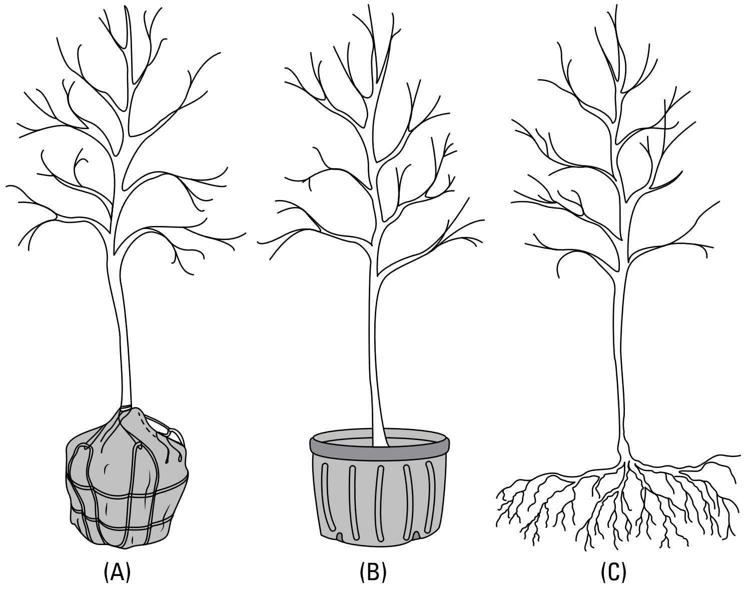

FIGURE 12-3: Balled-and-burlapped (A), containerized (B), and bareroot (C).

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2. **Dig a substantial hole, twice as wide as but only a few inches deeper than the rootball.**

   Rough up the sides of the hole with a shovel or garden fork. Make sure you have a mound of loose soil in the bottom as you set the tree in to allow for easier development of roots into the area.

3. **Set the tree in the ground at the level it was growing previously.**

   You should be able to observe a soil line where the roots meet the main trunk.

4. **Hold the tree erect and in place as you backfill the soil.**

   If you can't do both at once, get a helper to do one of these activities while you do the other.

5. **Water well to eliminate air pockets, which can cause some settling; then add more soil as needed.**

6. **Create a basin of mulch or soil around the edge of the planting hole to catch rain and future watering.**

   The size of the basin depends on the size of the tree, though it's generally 2 to 3 feet in diameter.

7. **Mulch the area well to help keep the soil from drying out and to keep weeds or encroaching lawn grass at bay.**

   Keep mulch an inch away from the trunk of the tree.

   REMEMBER

   Staking is controversial these days. Before you stake or not, refer to the section, “Raising the stakes: Offering some support,” for important information.

8. **Add tree wrap.**

   You can add wrap for a young tree to protect it from sun scald and/or gnawing rodents that can strip the bark, resulting in stunting or killing the tree.

TIP

Some unscrupulous sellers of trees wrap tree trunks to hide damage to the trunks, If you’re suspicious, unwrap the tree before you buy it to make the bark is intact and in good condition.

Balled-and-burlapped trees

Balled and burlapped (called *B&B* in the trade) is a time-honored way to sell a tree. It indicates that the plant was recently dug out of the ground. The burlap and twine is there to hold the rootball together, usually along with some soil. This state of affairs is meant to be temporary; the wrapping is just to make transporting easier and neater.

If for some reason you can’t plant your B&B tree right away, it can keep for a few days or a week if you stash it in a shady, sheltered spot and keep the burlap dampened.

REMEMBER

Make sure you remove every bit of this burlap covering and all the twine or string on planting day. Arborists used to advise that you tear open only the bottom of the burlap and let the rest rot in the planting hole over time, but this idea has been discredited. Also, some modern wraps are woven plastic and nylon twine that won’t rot and that never break down and can constrict growth or even eventually kill the tree.

Container trees

Sometimes young trees are offered for sale in 5-, 10-, 20-gallon, and larger pots. They need to get out of these containers soon! Otherwise, they run the risk of becoming rootbound. You can check root condition at the nursery before buying; simply tip the pot to the side to see whether the roots are in a dense tangle or whether some roots are questing out of the drainage holes in the bottom — both signs of a rootbound plant.

Buying a slightly rootbound seedling tree is okay. When you get it home and are about to transfer it to the planting hole, you can score the sides vertically with a sharp knife (a mere ¼-inch slice); rather than harming the rootball, this act forces the roots to generate fresh new feeder roots at the incision.

Bareroot trees

Bareroot trees are dormant, but they won't be for long if spring is in the air. However, you can buy them earlier in the season and plant them earlier without fear of transplant shock. When in the ground, they emerge from dormancy and start growing at a gradual rate.

REMEMBER

Regardless of whether you buy a bareroot tree at a nursery or order one via mail-order, do check it over for quality and health. The roots should be crisp and white or brown. You can clip off a few bedraggled or blackened limp ones or others too long to fit in the hole, but if you notice a lot of blackened roots, which are usually dead and rotted, you have an unhealthy specimen.

You may observe that the tree has little or no signs of green leaves or buds. For a novice gardener, buying one of these is indeed an act of faith. But it will come to life; it will!

Here's a special tip for bareroot trees: If you have a mere slip of a young tree, consisting only of one main stem and no limbs as yet, cut it back by about a third prior to planting. Yes, this trim sets back upward growth for a while, but it also allows the young tree to direct more energy into root growth, which is so important at first.

Taking Care of Your Tree

Trees, sadly, are often cared for only when first planted and then they're left to fend for themselves in landscapes after they've matured. People usually end this isolation only if the trees become diseased or damaged. Yes, you should take special care of your tree when it's newly planted to help it get established, but you should also make a habit of caring for it season by season, year by year, as it matures and grows. A healthy tree is a happy tree, and trees reflect the care you put into them in their beauty. Healthy trees often make the most beautiful trees, after all. The ways to make your trees healthy are plenty of water, fertilizer, pruning, and support, which the following sections explain in greater detail.

Giving trees a tall drink of water

The most important times to water a tree are when it's newly planted — indeed, throughout its first year — and during dry spells. Deep, soaking waterings are ideal. If you've made a basin around the tree on planting day (as I advise in the previous "Planting your tree" section), the water will go where needed instead of dribbling away.

Lay a hose at the base of the tree and run it on a slow trickle. Check back at intervals to make sure the water's soaking in. If it starts to run off, stop for a spell, let the water soak in, and then resume.

If you're wondering whether the water you supply is actually reaching the roots, dig about a foot down with a trowel and find out. You may be surprised to discover that you have to water for much longer than you thought. Trees are heavy drinkers!

Soak new, young trees twice a week their first year. Mature trees, of course, can go longer. How long depends on the type of tree, your soil, and the weather. When in doubt, water mature trees about once or twice a month during the height of summer.

TIP

In a drought, don't wait until the tree is shedding leaves or wilting to apply supplemental water (assuming your municipality doesn't limit or forbid watering) — withholding water is very stressful for an already weakened plant.

Water bags are very handy for watering recently planted trees. Simply place these clever devices around a tree at the ground level and fill them with water. They're designed to slowly release water so that it gently saturates the soil around the tree roots without running off. See Figure 12-4.

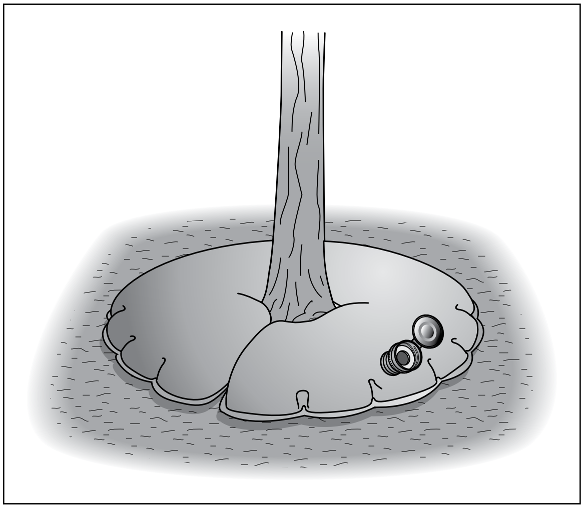

FIGURE 12-4: Water bags give trees a long, slow drink.

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Fertilizing trees

Whether to fertilize a tree is strictly your call. If you know your garden soil isn't very fertile or you want to pamper a new, young tree, you may fertilize monthly or even more often during the growing season. Check at the nursery or garden center for tree fertilizer and apply or dilute according to the label directions.

WARNING

Stop fertilizing as fall approaches! Plant food inspires fresh bursts of growth, which cold weather or an early frost can damage. Fall is the time when your tree should be slowing down in preparation for the coming winter, anyway.

Life and limb: Pruning judiciously

You can really prune trees any time. Prune to remove obviously dead or damaged growth, to keep the tree healthy and your landscape beautiful, and to remove potentially dangerous branches that could fall and create a lot of damage.

REMEMBER

Use sharp tools so you don't mash or rip your tree's growth, and use the right tool for the job — if handheld clippers struggle to make the cuts you want, graduate to loppers or a saw (flip to Chapter 5 for info on tools).

TECHNICAL STUFF

In the spring, you can also remove suckers and watersprouts right at the base, whenever they appear, to help keep your tree well-groomed. *Suckers* are shoots that originate underground from the roots; *watersprouts* are the usually fast-growing vertical shoots that sprout along a branch or the trunk of the tree.

Winter is the best time to do maintenance pruning. The tree's profile is easier to see and assess, and the tree can recover from your cuts. Thin out tangled growth, a crowded interior, and generally shape the crown. Remove branches that are crossing one another or are in danger of rubbing against each other.

Training and pruning young trees

Pruning the trees when they're young is always the best bet. That is, prune a tree wisely and properly while it's still small — chances are that you'll have little more to do when it's older. Also, such cuts are smaller and consequently heal faster. But what you cut depends on what your goals are. Perhaps you want a single trunk. If so, watch and pick a trunk, and remove the competing leader or leaders. If a tree is well shaped when you buy it, you may not have to do any pruning when it's young. You only need to do maintenance pruning as it matures.

REMEMBER

Because distance from the ground never changes and distance between branches never changes, make your cuts only after careful observation of the entire tree. You want evenly spaced branches going up in a spiral so the mature tree will be attractive and full from all angles. You want your tree to have a balanced attractive shape. Pick your keepers and remove all others.

Maintenance pruning of mature trees

Sometimes a branch, or more than one, needs to be removed from a large tree. Perhaps it was damaged by some sort of accident or a storm, or perhaps it's threatening a roof or power line.

Big limbs are best removed in a three-cut approach (see Figure 12-5) so you can lower them in pieces to the ground without damaging anything or hurting anyone. This approach also ensures that their removal doesn't involve ripping or twisting, which mars the tree itself. You may have to tie a rope securely to the branch's end so you, or a helper, can control its fall.

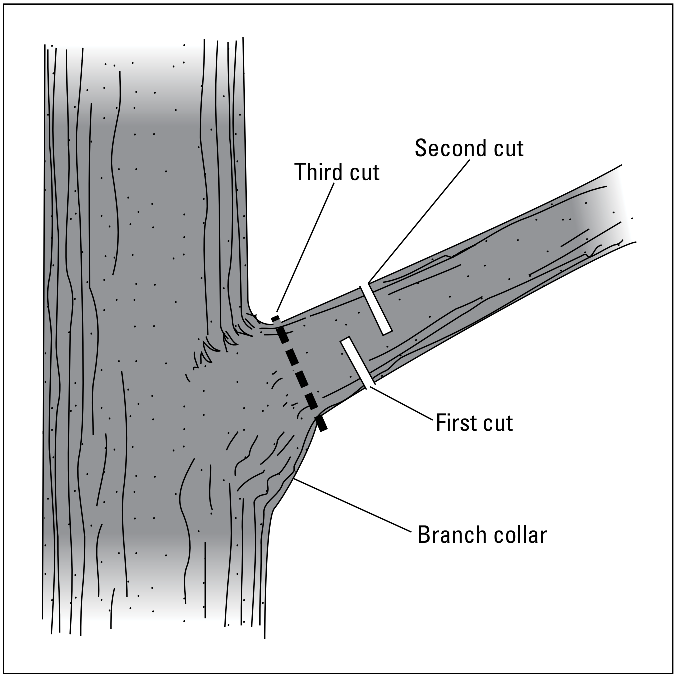

FIGURE 12-5: Removing a large limb in three steps.

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Here's how the cuts work:

1. **Make an undercut several inches out from where the branch attaches to a larger limb or the trunk, partway through.**
2. **Make a cut from the top of the branch a few inches farther out.**

   As a result, the branch breaks off cleanly.
3. **Remove the stub flush against the main branch or trunk, thus finishing the job neatly.**

   Don't bother with glue or tree paint. The wound will heal itself.

WARNING

If the branch is heavy, up high in the tree, or seems to warrant the use of a chainsaw rather than a handsaw, this is a job for a professional arborist. For branches that are threatening a power line, notify your power company of the problem. If they don't take care of it, consult a professional arborist who's experienced in working around power lines.

Ask at a local garden center, ask neighbors who have had tree work done, or look in the Yellow Pages for a licensed, bonded, insured, certified arborist. Then have the arborist over to look at the job, and get a written estimate. At this time, your instincts can tell you whether the arborist seems confident and competent. But still find out whether the he or she is insured and has training credentials, and get the number of at least one other customer as a reference. You don't want to hire an amateur and incur damage or have an accident on your property for which you may be liable. If you can, ask to see the arborist's work. Steer clear of those who *top* trees (lop off the ends of terminal limbs). This mutilation results in an unsightly, stubby-looking tree with large wounded limbs that are susceptible to disease and insect infestations.

Candle growth is the tender new growth (before the needles have expanded) of conifers. You can cut or "pinch" these growths when they're young to encourage branching (see Figure 12-6).

Raising the stakes: Offering some support

Staking isn't always necessary or desirable. The new standard advice: Unless the tree is in a very windy, exposed spot or especially top-heavy, staking a young tree can do more harm than good. It won't grow strong on its own, depending instead too much on the support (also, the ties can abrade bark, inviting disease). Staking is usually warranted only when the trunk is frail or exposed to strong winds.

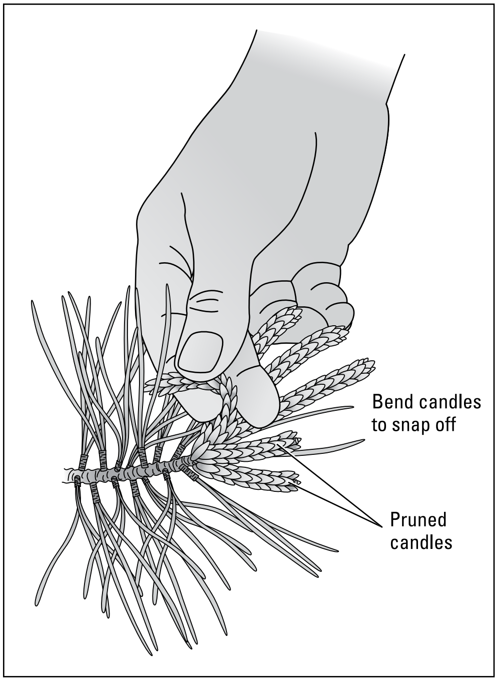
Bend candles to snap off
Pruned candles

FIGURE 12-6: Pruning candle growth on evergreens.

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If you decide to stake don't stake too firmly; you want the tree to be able to move with the wind without whipping back and forth, which can cause root damage. The kind of stakes you use — wood, fiberglass, or metal — doesn't especially matter, so long as the stakes are quite long, strong, and sturdy.

Stakes should be sunk deep into the ground — another reason to stake when the tree's young (with a larger tree, you may find the roots obstructing the way or you may harm the roots as you plunge in the stake). Unlike staking, say, a top-heavy dahlia, tree stakes are not placed right close to the stem they're meant to support. Tree stakes are much more effective when you put them a distance away (just beyond the watering basin is good) and connected with string or wire or cloth to the tree. See Figure 12-7. Use the method on the left if wind comes from one direction, and use the method on the right if wind comes from several directions.

TIP

To avoid laceration of the tree trunk or branches, protect wire or twine with plastic or a length of hose, or use a softer material such as cloth strips.

If you drive two stakes into the ground on opposite sides of a small tree and connect each one to the trunk, the result is quite stable; using three stakes balances the tree even better, especially when you have prevailing strong winds. You can probably remove the stakes after the first year — their work is done, and the youngster ready to stand on its own.

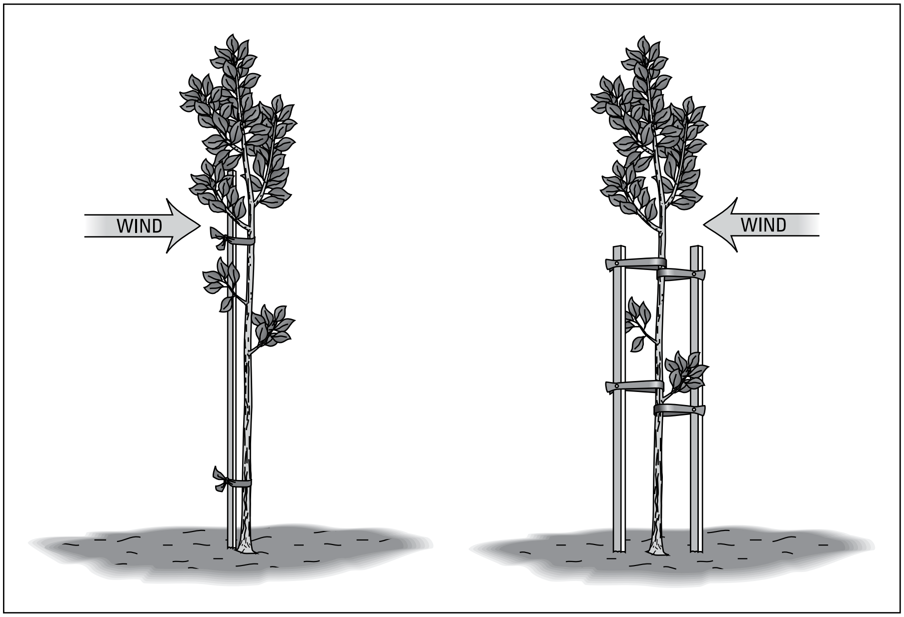

FIGURE 12-7: Two different ways to stake a tree.

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WARNING

Careless use of weed eaters or nylon string trimmers can severely damage and even kill trees. This tool can quickly strip the bark off the tree around the soil line where weeds frequently hang out. Having a ring of mulch around the base of the tree will help keep the weeds out and the trimmer kept at a safe distance from the tree trunk. Because the living bark of a young tree is extremely thin, even what appears to be minor damage to this delicate layer of bark can be an entry point for disease and insects and inhibit the absorption of water from the roots.

IN THIS CHAPTER

- Examining shrubs
- Deciding where shrubs go best
- Planting and caring for shrubs

Chapter 13

Going Low with Shrubs

Shrubs provide an understory to your garden giants. Shrubs are usually less than 15 to 20 feet tall. You also can find small-size trees and large-size shrubs — plants that blur the line. Your real object is to pick out something that fits into the location you have in mind, so what the plant is called may not really matter. And yet classification can have some bearing, because trees and shrubs have somewhat different growth habits that have less to do with how tall they get and more to do with how wide they get or how much space they take up.

Most *shrubs* are multi-stemmed and over time form a barrier or thicket (which is why they make good hedges or property-line plants). So think what you want the plant to do for you. Plan the look you want. Stand and ponder the appointed spot in your yard. For shopping tips and advice on planting and care, read on.

Knowing Your Shrubs

Shrubs are the real workhorses of the home landscape. For all intents and purposes, regard them as permanent or long-term fixtures. They're something to see and appreciate in all seasons, bringing heft and stability to your yard. And after they reach mature size (which doesn't take a lifetime, like trees can), you can maintain them that way with little trouble. So it behooves you to choose wisely, matching your yard's growing conditions and getting the look you want. In these sections, I tell you about the different types of shrubs.

REMEMBER

Consult your local garden center, agriculture extension agent, or online publications from your Land Grant University (refer to Appendix A) to find out which cultivars are best suited to your area and also to know which shrubs are invasive and potentially illegal to grow in your area.

Nonflowering shrubs

Shrubs like trees may be deciduous or evergreen, needled or broadleaf (see Chapter 12). Here are some of your best bets for nonflowering shrubs. Check with your local garden center or cooperative agricultural extension to see which specific varieties of these trees and shrubs are best suited to your area:

- **Evergreen needled:** Some ideal needled shrubs include Japanese yews, mugo pine, junipers, boxwood, dwarf conifer, and arborvitae.

  REMEMBER

  Some herbs also fit this category, such as sage, lavender, oregano, thyme, and rosemary. See Chapter 17 for information on herbs.
- **Evergreen broadleaf:** Broadleaf shrubs that keep their leaves year-round include Japanese pieris, mountain laurels, boxwood, sweetbox, and various hollies.
- **Deciduous:** If you want shrubs that drop their leaves every year, consider privet, hydrangea beautyberry, snowberry, various euonymus, alpine currant, and various willows.

  Some deciduous shrubs can give you a fantastic show before shedding their leaves. Favorite shrubs for spectacular fall color include barberry, aronia, blueberry, oleander, and smokebush.

Figure 13-1 shows some examples of the many creative possibilities with evergreen shrubs.

Flowering shrubs

Flowering shrubs give you the most bang for your buck. You get the benefit of their foliage all season long, so they're a substantial presence in your yard while other flowers — annuals and perennials — come and go at their feet. But these shrubs also contribute pretty flowers. Some shrubs flower in spring, summer, and even the fall, but spring-flowering shrubs are the most common.

Spring-flowering shrubs come in many hues, and matches are fun to make when you're viewing the yard as a whole. Bloom times may or may not match up, though. Of course, in different parts of the country, spring may be extended so that you don't get much overlap, whereas in colder areas, such as in the Midwest, the same spring bloom is compressed into a much shorter time, so you see much more overlap.

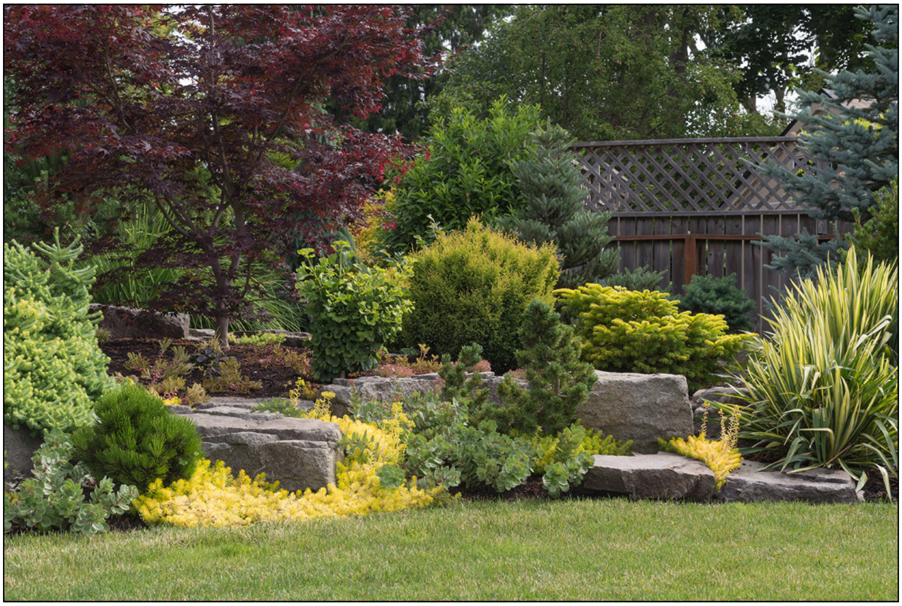

FIGURE 13-1: Evergreen shrubs come in many shapes and sizes, so present a myriad of creative possibilities.

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From time to time, you need to prune flowering shrubs, mainly to shape them. The right timing is important, or you may accidentally cut off the buds before they have a chance to flower! Consult "Pruning for shape and rejuvenation," later in the chapter, for details.

Some flowering shrubs are deciduous and some aren't. Deciduous azaleas are, of course, deciduous, whereas evergreen azaleas and rhododendrons aren't.

Favorite spring-bloomers include lilac, spirea, forsythia, daphne, hydrangea, ceanothus (California lilac), rhododendron, azalea, heather, winter jasmine, mock orange, viburnum, California flannel bush, and Chinese empress tree. If you want to look into obtaining bushes that sometimes bloom in summer or early fall, look into roses (see Chapter 9), broom, clethra, potentilla, Rose-of-Sharon, butterfly bush, Russian sage, and abutilon (flowering maple).

HYDRANGEAS ARE GARDEN SUPERSTARS

Hydrangeas are some of the most popular shrubs — and for good reasons. Several types of hydrangeas are available, and they're all worth exploring. Here I focus on a few of the real winners:

- **Big leaf hydrangea** (*Hydrangea macrophylla*): Sometimes called the *florist's hydrangeas or mopheads,* this hydrangea is a standout in any garden. It has gorgeous globular heads of flowers in shades from light blue to purple and from pink to red.

  When you're ready to buy one, keep these points in mind:

  - **Most of the older varieties and many of the new ones send out blooms on last year's growth.** This works great if you don't have a severe winter that kills back last year's growth to the ground. If it happens, you'll have lush new green growth originating from the bottom of the plant but no blossoms. To overcome this problem, seek out varieties that bloom on *new wood* or new growth that originates in the spring, so even if your winter zapped out last year's growth, the new growth will produce flower, which is quite an advantage for gardeners who live in cooler climates. 'Endless Summer,' 'All Summer Beauty,' 'Nantucket Blue,' and 'Rave Let's Dance' are examples of varieties that bloom on newly produced branches in the spring.
  - **The pH, the relative acidity of the soil, determines what color the flowers will be.** If your soil is acidic, say a pH of 6 or lower, you'll get blue flowers. If your soil's pH is much above this level, you'll get shades of pink. The reason the pH makes a difference is that the blue coloration requires aluminum in the soil. In the higher pH ranges, aluminum isn't soluble so it isn't available to the plant.
- **Oakleaf hydrangea** (*Hydrangea quercifolia*): It has no particular pH requirements and offers flowers later in the season than the mopheads. The oakleaf has leaves shaped like an oak flower cluster in the late summer. It come in various heights, grows in sun or shade, and has spectacular scarlet fall color. It stands up well in dryer and cooler climates and put a great show in the late summer into early fall as its white flowers (the flowers are actually bracts) take on a pinkish cast.
- **Panicle hydrangea** (*Hydrangea paniculata*): The panicle type is tough as nail and has mostly white flowers (although there is a green variety) produced in a cone-shaped cluster. The panicle also stands up well in dryer and cooler climates.
- **Japanese climbing–hydrangea** (*Hydrangea petiolaris*): It's a slow grower, but as soon as it gets established, it's a showstopper that climbs up any vertical element.

You can find other beauties in this special group so check them out.

Planning Practical Uses for Bushes

Sometimes gardeners grow shrubs in groups, rows, or masses — for purely practical reasons, not just for their beauty. Of course, their beauty is a nice plus! For best results, plant the young shrubs close together but not so closely that they soon crowd one another (which leads to misshapen growth and poor health). Finding out and planning for their mature size and how long it will take to reach maturity can help you space them appropriately. You can find this information on the plant tag when you buy the plant, or you can look it up online.

Here are some possible uses and recommendations:

- **Visual screens and sound barriers:** A boundary of shrubs around a patio, or deck, or along a property line does more than screen out a view of the outside world (your neighbor's house, driveway, or trash bins or a busy street). It creates a sense of enclosure and intimacy. It may also cut down on noise — a nice plus. Some good choices include holly, rhododendron and azalea, hydrangea, privet, and rose. For year-around privacy, be sure to choose evergreen plants.
- **Hedge or fence:** Closely planted shrubs, shoulder to shoulder, can act as a living fence along a property line or anywhere you need to put up a barrier. People and animals are discouraged from crossing, and the hedge looks a lot nicer and softer than many fences may. Some good choices include mountain laurel, holly, chokeberry, yew, abelia, and privet.
- **Foundation:** A traditional use of shrubs is as a way to hide a home's concrete or stone foundation from view. As side benefits, foundation shrubs help integrate your home into your landscape and may help hold in both warmth in winter and coolness in summer. Some good deciduous choices include cotoneaster, daphne, firethorn, flowering quince, and hydrangea; good evergreen choices include camellia, aucuba, nandina, cephalotaxus, holly, rhododendron and azalea, spruce, and yew. Don't overwhelm your house with these plantings. They're supposed to enhance the outside of your home, not hide your house!

Planting Shrubs

A shrub needs elbow room. Eventually, it'll reach its mature size and growth will slow and stabilize. At that point, the shrub shouldn't be crowding other plants, including other shrubs and your flower garden, nor should it be encroaching on areas where you need to walk or keep things, including garden furniture. The ultimate height and width of the plants are things you need to plan for even before you buy your shrubs.

REMEMBER

Know the limits; find out the projected mature size of the shrubs you want ahead of time. This information ought to be on the nursery tag or on a label on the pot; otherwise, someone on the nursery staff can tell you, or you can look it up. Read on for some planting info.

Deciding when to plant your shrubs

Planting in the spring gives young plants an opportunity to establish themselves in your yard, a few months in which to develop roots that both anchor and fuel the show this year and for years to come. Local nurseries have the best and broadest selection waiting for you in spring.

Fall planting is also possible, right after summer's heat begins to dissipate and well before a frost is expected — four to six weeks before frost is a good time frame. Gardeners in mild-winter climates tend to have better luck because of the longer spell of hospitable weather. Either way, though, don't expect significant aboveground growth (new leaves or flower buds); some root development at this point can give new shrubs a jumpstart on next spring. To help the plants prepare for dormancy, don't fertilize fall-planted shrubs.

WARNING

Avoid summer plantings, even if the shrubs are on sale! Summer heat and sun are stressful for newly planted shrubs and they may struggle, dropping leaves and buds. If you simply must, coddle the youngsters with some sheltering shade and plentiful water.

Situating your shrubs

Where to plant your shrubs has as much to do with the ground quality as with the location. A single shrub, sited solo and out in the open, is what landscapers call a *specimen plant.* People view it from all angles. So attend to the ground below (is it good soil or can you improve it? Is it free of obstructions, including tree roots and utility lines?) and attend to the space around (will it have enough space to grow and reach its full potential?).

Shrubs are great in rows or sweeps, as screens, barriers, or hedges, and as foundation plants. For best results, clear the area in advance and make sure the shrub isn't too close to a building, fence, or other obstruction that may inhibit or halt its growth. Depending on how many shrubs you're installing, either dig a line of individual planting holes or make a big, long trench.

The concept of shrub borders isn't new. The idea is to plant a group or row of shrubs that are different sorts, weaving together a compatible, textured show. It can have an informal or wild look, or it can be an artful tapestry. Because the different plants have different growth habits or profiles, you may need to intervene from time to time with your clippers or loppers to keep the look you want and to discourage more aggressive growers from dominating. See Figure 13-2 for an example of a modestly sized shrub border incorporating small trees and ornamental grasses.

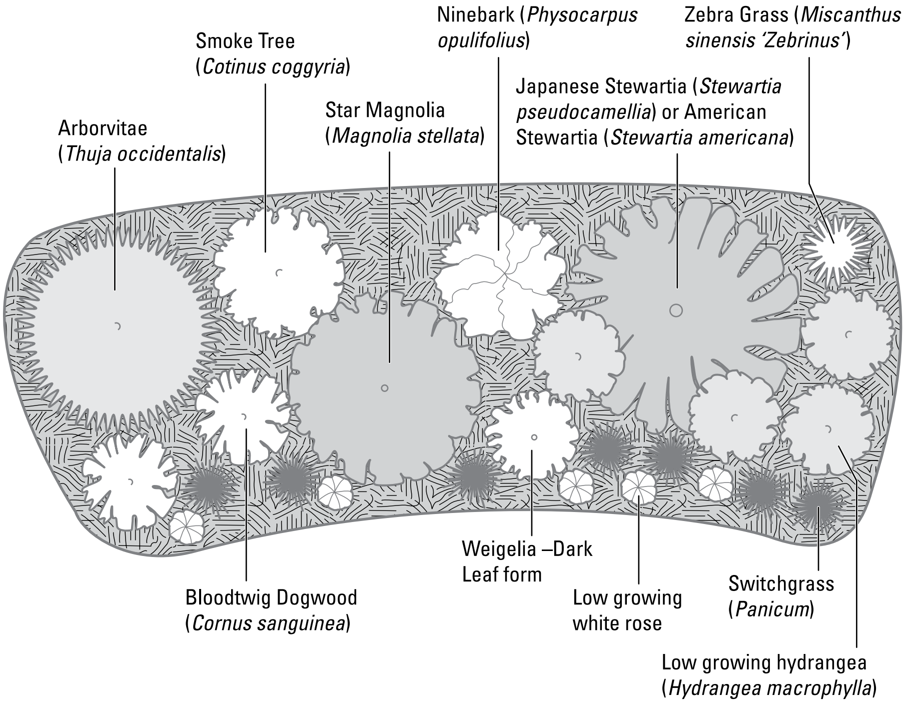
Smoke Tree (*Cotinus coggyria*)
Ninebark (*Physocarpus opulifolius*)
Zebra Grass (*Miscanthus sinensis 'Zebrinus'*)
Japanese Stewartia (*Stewartia pseudocamellia*) or American Stewartia (*Stewartia americana*)
Star Magnolia (*Magnolia stellata*)
Arborvitae (*Thuja occidentalis*)
Weigelia –Dark Leaf form
Bloodtwig Dogwood (*Cornus sanguinea*)
Low growing white rose
Switchgrass (*Panicum*)
Low growing hydrangea (*Hydrangea macrophylla*)

FIGURE 13-2: A shrub border that offers interesting flowers, bark colors and textures, and foliage year around.

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WARNING

Pay attention to your lines of sight if you're planting in the front yard. A shrub too close to the road can make pulling out of the driveway harrowing.

Perfecting your shrub-planting skills

Amending the planting hole is usually a good, practical idea. If you know your yard's soil isn't that great, or if your new shrub has a particular soil requirement (for instance, rhododendrons prefer acidic soil), by all means, make soil adjustments. The rule of thumb is half native soil and half organically rich amendments (which can be any or all of the following: topsoil, compost, dehydrated manure, loam, or slightly moistened peat moss). Chapter 4 has more info on soil amendments.

For the shrub to receive the maximum benefits of the improved soil, the planting hole should be as big as you figure the rootball will become over time (the rootball ultimately will become as deep and wide as the plant above is tall and wide).

Here I give you a few more details on how to plant your bushes based on the form they're in when you buy them, whether as container plants, bareroot plants, or balled and burlapped. For a general approach to planting bushes, no matter what form they arrive to you in, apply the info in Chapter 12.

Container shrubs

Suppliers commonly sell shrubs in pots. Your main concern is that the plant not be too terribly rootbound. Tilt the pot and nudge out the root system for a look, if possible. The roots should fill the pot but not be an impenetrable mass; some roots may be questing out the bottom drainage holes. (If the root system seems small for the pot or dirt spills out all around, the shrub is not well-rooted; bypass the plant in favor of a better specimen.)

REMEMBER

When you're ready to plant back at your house and you coax the roots out of the pot for the last time. You can help encourage new growth by using your fingers, tease tight roots loose, especially on the bottom. If the side roots are fairly tight and resistant, you may score them very lightly with a sharp knife (¼ inch deep is all) on four sides to inspire fresh root growth when the plant's in the ground.

Bareroot shrubs

Occasionally, shrubs are available earlier in the season or via mail-order as bareroot plants. These plants are dormant plants and, truthfully, don't look too promising, but don't be fooled. You should see little or no evidence of green growth on the top part. The root system should look healthy, though, with crisp white or brownish roots. If the plants have wiry, black, or limp roots — only a few — clip them off; if you see a lot of these, the plant is in rough shape; reject it. If you bought the plant from a local nursey, return it for a healthier specimen. If you bought it by mail, take a picture of the plant and its root system to send to the supplier to get a replacement or refund.

Bareroot shrubs can go into the ground earlier in the spring, because they're still dormant and won't be traumatized by the cooler soil and air. Properly planted, they come to life gradually along with the rest of nature.

Balled-and-burlapped bushes

Larger shrubs and field-dug ones are often sold balled and burlapped, later in spring when freezing weather is past in cold-winter climates and fall through spring in mild-winter climates. The root system is wrapped up in a protective cover of burlap that's laced securely in place. This wrapping allows you to get the plant from nursery to home without a mess.

Eyeballing this mass can give you an idea of how big a hole you need to dig — aim for at least several inches deeper and wider than the rootball. A hole the size of the mature plant, partially filled with a mix of native and amended soil, may be even better.

REMEMBER

Prior to planting, remove or cut off all the burlap and twine. In the past, some landscapers and gardeners simply opened up the bottom of the bundle and put the plant in the hole, leaving the remaining burlap and string to rot over time in the hole. But this tack is no longer advisable — today's burlap and twine may contain plastic, which doesn't biodegrade. Take it all off!

Caring for Your Shrubs

A well-cared-for shrub is beautiful and healthy, and it remains so. Frequent attention to the plant's needs is crucial the first year or two, less so as the years go by and the plant becomes an established part of your yard. The following sections give you the basic information that you need to take very good care of your bushes.

Watering your shrubs

Giving your shrubs water is important to ensure they stay healthy. Keep the following tips in mind:

- **When first planted and indeed throughout the entire first growing season, water your new shrubs deeply and often.** Deliver the water directly to the root area (a hose trickling slowly into the basin you created on planting day is perfect).

- **Water your shrubs twice a week during the spring and summer months.** Slow down and stop at the beginning of fall, sending the plants into winter with one last good soaking.
- **Keep track of the age of your shrubs.** A young plant can't tolerate dry spells and drought because its roots are still developing and may not dive very deep into the ground. An older, established plant can withstand drought better but shows signs of distress by dropping petals, unopened buds, and dried, curled, or yellowing leaves — don't let the situation come to that. (Dramatic cycles of soaking and drying out are also stressful for a plant and weaken it, making the shrub more vulnerable to pests and disease. Neglect becomes a downward spiral.)
- **Lay down a layer of mulch, at least an inch or two thick, in spring or summer, across the shrub's root zone.** This mulch helps retain soil moisture. It also keeps encroaching weeds or lawn grass, competitors for soil moisture, at bay. Keep mulch 1 inch away from stems so the mulch won't be a haven for rodents.

Fertilizing your shrubs

For newly planted shrubs, some people have found starter solutions useful. They consist of water soluble fertilizers (usually high in phosphorous) and vitamins and hormones that stimulate new root growth. Regular fertilizing can begin the second year

- To boost overall plant health and vigor
- To help green up the leaves and encourage thicker foliage
- To promote more buds and thus more flowers

Apply a general-purpose garden fertilizer, diluted according to the label directions. For best results, feed every two weeks or monthly throughout the growing season. If your yard's soil is good or the plants seem fine without fertilizer, of course, leave well enough alone.

Pruning for shape and rejuvenation

Most shrubs require at least some pruning to control growth and to shape the plants. Always use sharp, clean tools; try clippers for the smaller branches and loppers for the larger ones. Electric hedge trimmers can be useful when shearing hedges (see the sidebar) but are not recommended for other pruning. Hand tools do the job more precisely with cleaner cuts (see Chapter 5 for info on tools).

Late winter or early spring is the best time to work on your shrubs because they're dormant then. Also, if the shrubs are deciduous, they aren't cloaked in foliage at these times and you're better able to see and assess the branches' forms and condition and the plant's overall profile.

You can also trim or shear hedges when growth is underway in later spring or summer, if you're trying to keep the plants compact and in bounds. The risk, of course, for deciduous spring flowering shrubs, is removing buds of future flowers so prune those shrubs right after they flower.

TIP

Shrubs grown for their flowers that bloom in spring and early summer are an exception to the spring-pruning rule. If you cut them in early spring, you remove the coming season's show. Wait until just after blooming is finished. The shrub gets time to recover and to generate new flower buds for the coming year's blossoms before winter comes.

TIP

Knowing when to prune shrubs that you enjoy for both fruits and flowers (such as viburnum and rose) is hard because you're forced to sacrifice either some of the flowers or some of the berries or hips. Your best bet is to split the difference: Do some trimming right after bloom and cut the plant a bit more in the fall (in the case of viburnums, you can call the fall pruning *berry harvesting* — the berries are very decorative, nice for holiday swags and wreaths).

Getting an overgrown shrub — one that's too big, too wide, or growing thick and wild — back into shape takes time and patience, but it's possible, and you'll be so proud of the results. This pruning is not hard work, but it does take several years. Follow these steps and the illustration in Figure 13-3:

1. **Remove all nonnegotiable growth.**

   Cut out all dead, diseased, broken, or damaged wood. Cut this growth right down to the ground and get it out of there. The shrub should look better immediately.

2. **Take out a few of the older stems.**

   Don't remove them all — not more than about a third for starters. Let the plant recover for a year before you decide to remove even more.

3. **The next winter, shorten the remaining stems to just a bit lower than the height you want the shrub to be.**

   Then let the shrub grow — the wounds will soon be hidden from view and in ensuing years, you can maintain the plant at the size you want.

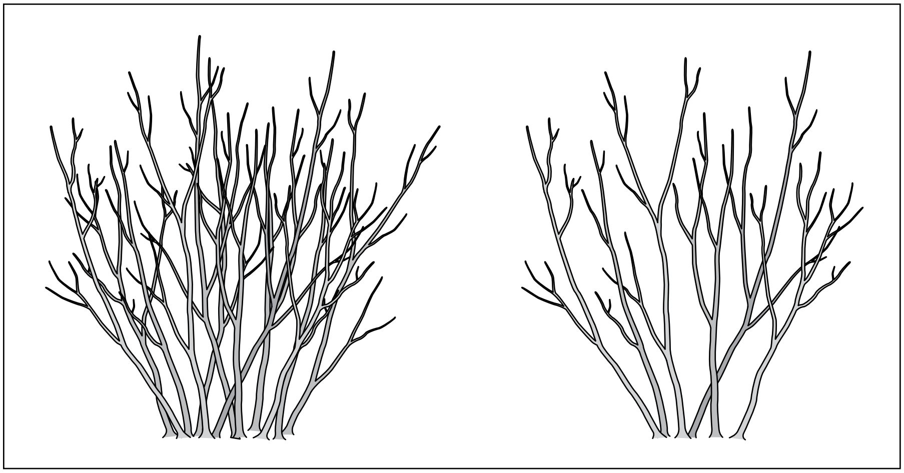

FIGURE 13-3: Left is the bush before pruning, and right is the bush after pruning.

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REMEMBER

In some situations the shrub has gotten totally out of hand. For example, it's 12 feet tall in front of your picture window. In this case you have a couple options:

- You can just remove it and replace it with something more compact.
- You can cut it all the way back to a foot or so from the ground.

If you do the latter, the shrub will look terrible for a few months, but new growth will soon come roaring back. When it does, keep it in check by rejuvenating it. Prune in the early spring before any new growth has started.

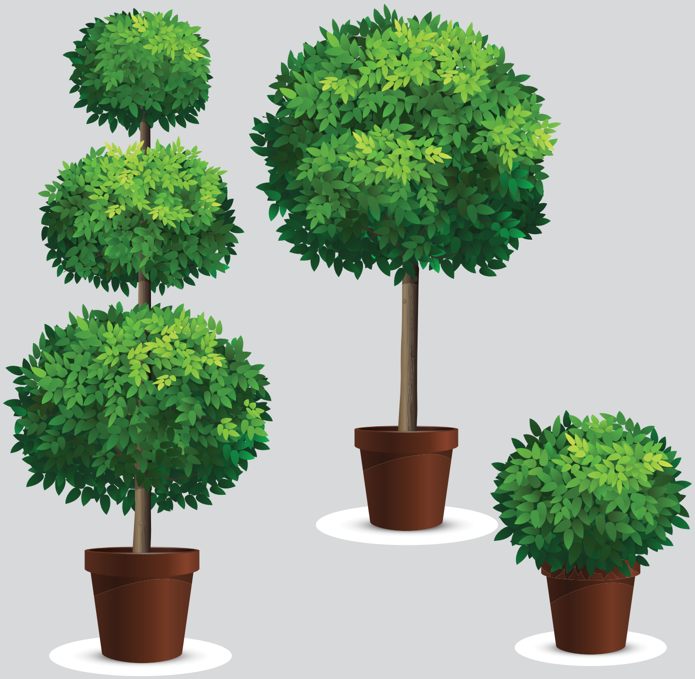
SHEARING HEDGES: STAY AWAY FROM SHRUB LOLLIPOPS

Shearing is a term used to describe the pruning method used most frequently to create or shape hedges. Instead of hand pruners, you use hedge shears, the hand or electric type, to do the job.

In pruning shrubs, try to maintain the natural shape of the plant. A common mistake is to shape shrubs with a wide top and narrow base. Lack of sunlight shades out lower interior growth, resulting in a woody base.

Unfortunately, many gardeners use or misuse shearing to shape shrubs into balls or other geometric shapes. Your shrubs beg you not to do this! It results in a yard full of shrub lollipops! They look very artificial, and after you start this process, you're forced to keep it up every year. Save yourself work and your shrubs embarrassment by pruning them to their natural form. The following figure shows you that evergreen shrubs can be pruned or sheared to most any shape.

However, some shrubs can be pared and sheared into topiaries, which the following figure shows.



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IN THIS CHAPTER

- » Observing vines and how they climb
- » Deciding which vines suit you best
- » Providing support, planting, and caring for vines
- » Checking out groundcovers
- » Planting and taking care of living carpets

Chapter 14

Climbers and Crawlers: Growing Vines and Groundcovers

People give so much attention to flowers, both annual and perennial (see Chapters 6 and 7 respectively), that they sometimes forget the rest of the story — or rather, they forget that gardeners have other important possibilities for their gardens.

When you include vines, you decorate the vertical plane of a fence, wall, or trellis. When you add some groundcovers, the horizontal plane of the yard gains a living carpet, an attractive alternative to a span of cement or gravel or lawn grass.

Vines and groundcovers are important in gardening because they embrace and effectively soften the floor, walls, and ceiling of your garden. Properly planted and, in the case of vines, supported, these versatile plants are both easy and essential. Use vines and groundcovers to make the most of limited space or to make a sprawling area more intimate. This chapter gives you the information you need to get started.

Looking at How Vines Hold On

Vines are interesting plants. Consider this: They've evolved to seize and enjoy a niche in the crowded world of plants, opportunistically going wherever the available space and adequate sunlight are. If their roots are secure and nurtured in the soil below, the top growth of vines is amazingly flexible. A vine can clamber through other plants, up or sideways as needed, and navigate tight spots until it arrives where it can bask and thrive. Pretty impressive!

Vines have adaptations that help them in their journeys. Or to be more specific, vines have their ways of hanging on as they climb. This information is important to know because it impacts the area or support structure you choose for your vine — you don't want damage, and you want the going to be easy. Basically, they fall into two main categories: clinging and nonclinging. The following sections give you an overview of climbing methods, as Figure 14-1 shows.

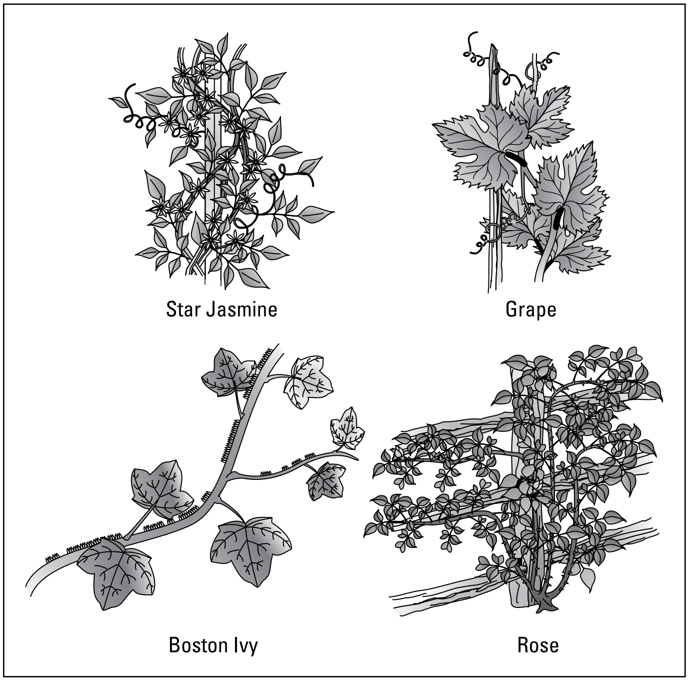

FIGURE 14-1: Star jasmine climbs by twining; grapes climb with tendrils; Boston ivy climbs via holdfasts; and climbing roses tend to sprawl.

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Twining

Twining is the simplest means for a vine to climb onward and upward. In *twining,* a vine's stems spiral around a support on their own and are thus anchored. Interestingly, some vines prefer to ascend clockwise, others counterclockwise. You can peer closely at your vine to discover which it is. Or you can try this fun backyard experiment: Find a stray stem and wind it around the support. If it stays in place an hour or half a day later, you guessed correctly; if it stubbornly unwinds and slings itself back into the open air, you guessed wrong.

The key to a successful display is to provide ample support, or supplementary support (such as strings attached to a wooden trellis), to guide growth in the direction you want. Favorite twining vines include hops, morning glory, star jasmine, moonflower, and wisteria.

Tendrils

Tendrils aren't the vine's stems itself but thin, short little appendages on the vine that do the grabbing and attaching work. Technically, tendrils may be modified branches or leaves. Though small, vine tendrils are often quite tough and resilient, hanging on even in a high wind or blustery storm or when pushed about by passing people or animals.

The key to a successful display is matching the thickness of the support or parts of the support to the tendrils' size so they have the ability to grab on and wind around more than once for more stability. Generally, thinner is better; if you still need sturdiness due to the plant's overall weight, try steel, cast iron, or stout plastic. Favorite tendrilled vines include sweet pea, grape, and passionflower.

Adhesive discs

Adhesive discs are actually modified tendrils, with the same toughness and resilience as tendrils but with an extra boost: Each tendril has a disc-like suction cup at the end. At any rate, these amazing structures afford a vine great adaptability — the vine can grab onto many kinds of supports, especially relatively smooth walls.

Though discs thrive with a smooth wall, they don't do well on rougher textures, such as brick, stone, and wood. Some of my favorite adhesive-disc vines include Boston ivy, crossvine, and Virginia creeper.

Holdfasts

Some vines, like climbing hydrangea, creeping fig, wintercreeper, and trumpet vine, attach themselves with small, rootlike structures along their stems called *holdfasts.* These vines thrive growing up slightly rough surfaces like bricks, wood, or stone. You can even hide unsightly chain link fences in several seasons with a combination of ivy or wintercreeper (both are evergreen, so they look nice in winter) and trumpet vine (for color and attracting hummingbirds in summer).

WARNING

Holdfasts can wend their way into porous surfaces like the mortar between bricks, eventually breaking down the mortar.

Sprawling

Vines in the sprawling group don't have the advantages of the others. All they really have going for them is long, pliable stems that adapt to and look good when allowed and encouraged to grow upward. Yep, *encouraged.* You have to help by hooking or tying them along their lengths so they can scramble in the right direction and stay on their supports.

REMEMBER

The key to a successful display is to start tying or otherwise attaching the stems to the support early and often. Use wire, wire hooks, twist ties from the kitchen, string, twine, yarn, or rags. If you're worried about abrading the stems, opt for the softer material. Loop the tie once around the stem and once around the support instead of tying the plant and support directly to one another. If you don't want the ties to show, use thinner ones or green ones that the vine's foliage can hide.

Favorite sprawling vines include climbing roses (if thorny, the thorns may prove nominally helpful in grabbing and staying on the support), wisteria, and jasmine. Vines that have heavy branches like wisteria are best supported by heavy-duty, stand-alone structures not attached to the house so they can be more easily maintained and controlled (see Figure 14-2).

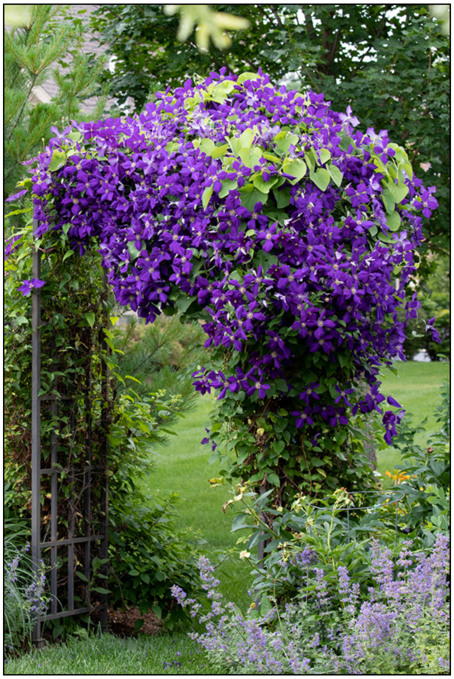

FIGURE 14-2: A stand-alone structure not attached to the house.

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Choosing the Right Vines

Ask yourself what you want from a vine. Do you have a good spot, or can you create one? Some vines are big, rambling plants; others can fill and remain in their allotted spaces. Some vines offer temporary coverage, and others are long-lasting. Figure out whether you want flowers or fruit and whether you want the vine for part of the growing season or all.

The following sections cover the kinds of vines available and how you can match a vine to your wants and needs and the environment you can offer. (***Note:*** You may want to choose the support before choosing the vine. If so, see the section, "Planting and Supporting Vines," later in this chapter.)

Considering your basic options

Like other plants, vines fall into annual and perennial categories. Read on for info on which kind of vine may be a good fit.

Annuals and tender perennials

If you want quick gratification, annuals and tender perennials are for you. The vines grow quickly. If they're genuine annuals, they're capable of growing from seed to plant to flowering-and-fruiting plant over the course of one growing season. If they're tender perennials, they can accomplish much the same thing but benefit from a head start indoors (because they can't go outside until all danger of frost is past).

Neither annuals nor tender perennials tend to survive a typical, cold North American winter with temperatures that go down to freezing or below; thus, gardeners have to replace these vines each year. The tender perennials survive in Zones 9 through 11 (refer to Chapter 3 where I discuss these zones in greater detail). Favorite tender perennials include black-eyed Susan vine, cup-and-saucer vine, bougainvillea, jasmine, and passionflower; favorite annual vines include moonflower, morning glory, climbing nasturtium, and annual sweet pea.

Hardy perennials

For a longer-term, dependable investment in your garden, perennial vines are a practical choice. Much like the perennials in your flowerbeds, perennial vines typically spend their first season getting established. An old gardener's saying describes the growth pattern of most perennial vines well: "The first year they sleep, the second year they creep, and the third year they leap!"

In ensuing seasons, these vines return reliably and put on a good show year after glorious year. Note that over time, their growth may get woody, and you may need to prune them. Some favorite perennial vines include Boston ivy, hops, clematis, climbing hydrangea, mandevilla, creeping fig, crossvine, akebia, honeysuckle, hardy kiwi, silver lace vine, trumpet creeper.

Perennial vines can differ in their foliage:

- **Deciduous:** The definition of a *deciduous* vine is one that sheds its foliage at the end of the growing season (just like a deciduous tree). And just like a deciduous tree, the vine may treat you to a colorful fall foliage display first. Winter is a dormant period, and then the vine revives the following spring. Favorites include clematis (the fluffy fall seed heads are an attraction), silver fleece vine, trumpet vine, hardy kiwi, and climbing hydrangea (when the leaves fall off, you can admire the handsome shedding red bark).

- **Evergreen:** Evergreen vines keep their foliage over the winter months (individual leaves do get replaced over time, but you don’t run into wholesale or dramatic shedding time). In colder areas, the leaves may look rather freeze-dried, but they hang on. In milder climates, winter’s show is mainly foliage, not flowers or fruit. No matter where you live, if you don’t want a barren-looking winter in your yard, evergreen vines are worthwhile. Favorites include various kinds of ivy, creeping fig (tender perennial), crossvine, and some honeysuckles.

Beyond these vine basics are still other details to consider before picking out the vines for your garden. I cover those next.

WARNING

I don’t list English ivy as a recommended vine, even though gardeners in the United States commonly plant it. The problem is the plant has become very invasive and has killed trees in severe cases because it blocks light from the leaves of the trees and is a carrier of a bacterial disease. After it gets established, controlling or eradicating it is exceedingly difficult.

Deciding cold-hardy or not

Before choosing your vines, consider whether your yard and climate can support hardy or tender vines. You can avoid disappointment by picking out a perennial vine that can survive winter in your climate (see Chapter 3 for hardiness zone info). You can certainly grow a vine that’s even tougher (if you live in USDA Zone 6, for instance, you can have a vine rated to Zone 4) for extra insurance. But if you live in Zone 6 and choose a vine that’s rated hardy only to Zone 8, it probably won’t survive.

REMEMBER

Hardy really means cold-hardy, and it indicates a plant that can survive weather that goes down to freezing — 32°F (−36°Celsius) or below. Its foliage may fall off, but its roots remain safely viable under the cold soil and snow and ice. Just as with other perennial plants, hardy vines benefit from a little extra protection over the winter months, namely several inches of mulch over the root area.

As for tender vines, unless your climate is quite mild (USDA Zone 9 or 10 or even 11 — I’m talking parts of the deep South, the Gulf Coast, the dry West, and Florida), the vines are unlikely to pull through. Your best bet is to consider a tender vine an annual. Yank it out in the fall, after cold weather withers its growth (or let winter kill it if you’re feeling lazy), and buy a new one or try something else next year.

Can you cheat? Of course! Accomplished gardeners consider it a badge of honor to succeed in growing something that’s considered not-hardy for their area. If you’re really fond of a tender vine, you can cut it back, dig up as much of the root ball as possible, pot it, and keep it inside during the cold months. Put it in a nonfreezing place and water sparingly so its growth slows down, yet not so little that the plant dries out and perishes.

REMEMBER

If any plants — whether they be vines, perennials, trees, or shrubs — are listed as *marginally hardy,* meaning only a zone away from yours, the plant may survive a mild winter in your garden. Or you can increase its odds of survival by growing it in your warmest garden spot (or microclimate — for more info on this concept and how to exploit it, see Chapter 3) and mulching it well when winter approaches. Be prepared to lose the top growth (everything above ground); the aim is to keep the roots alive so they can regenerate next spring.

Sizing up your vines

Keep your head when vine-shopping. Although the flowers or foliage of a certain vine may win your heart, you need to find out about its growth habit and pace before you commit yourself. Some very pretty vines are — to use the wry term of an experienced landscaper — house-eaters. Wisteria branches can separate gutters and support beams from a house. Hops grows amazingly fast, and if it runs out of space, it may send tendrils out to grasp at passersby.

TIP

To avoid scenarios of an out-of-control vine, spend a few minutes assessing the spot you want to place a vine. *How high is it?* For upward growth, you can be fairly indulgent, though you probably don't want something that'll overgrow the house. *How broad is it?* is the more pressing question. Keep these general dimensions in mind when you go vine-shopping.

So how do you find out whether your vine will politely stay by your arbor or attempt a hostile takeover of the Southeastern U.S.? Mature vine size is usually expressed as a range — for instance, "8 to 10 feet tall and up to 4 feet wide" — because, of course, dimensions vary according to the plant's health and the growing conditions and care you provide. Check the nursery label, catalog description, or a reference book, but consider this estimate conservative.

Make sure you allow elbow room. If a vine's appointed spot is too narrow, you'll be trimming and shaping constantly, plus poor air circulation can lead to fungal diseases that mar the appearance. Count on planting most vines at least a foot away from their supports, for starters.

Examining site considerations for vines

You can find a vine for almost every part of the garden. The idea is to make a match so the plant thrives. Examine your gardening site carefully and watch out for the following when deciding on the vines you want.

Amount of sunlight

How much sun reaches a vine can have a big effect on the plant's quality of life. Check out the following sun conditions:

- **Sun:** Lots of vines like full sun, growing lustily and producing plenty of foliage, flowers, and fruit or seed heads. But the vigorous growth requires energy to fuel it, and plentiful sun alone isn't enough. Make sure your sun-loving vine has good, fertile soil and ample water. Favorite sun-loving vines include ornamental grape, hops, passionflower, black-eyed Susan vine, climbing nasturtium, bougainvillea, morning glory, and trumpet vine.
- **Partial shade:** Plenty of vines prosper in part-day sun, filtered sun, and eastern- or western-facing exposures. Indeed, some cooling shade keeps the plant looking lush, and its flowers and fruit are less prone to fading or falling off prematurely. Favorite partial-shade vines include jasmine and climbing hydrangea.
- **Shade:** Yes, some vines do just fine in shady spots, some even tolerating life on the north side of your house or under the shelter of tall trees. Not surprisingly, their main attraction tends to be their leaves. Use these plants to create a cool, soothing oasis from the blazing heat of summer. Favorite shade vines include akebia and wintercreeper.

Soil quality

The majority of vines prefer fertile soil that's neither too soggy nor too dry. Obviously, prepared ground is important so that the roots can establish themselves and expand without running into obstructions, so it's always wise to prepare the spot ahead of time: Dig down about a foot and mix in some compost, humus, or rotted manure.

THE CHOOSY CLEMATIS: REQUESTING SUN *AND* SHADE

The clematis vine is a special case. This popular flowering vine has unique growing requirements that, if you ignore them, deliver disappointing results. Here's what the plants want, believe it or not: full sun on top and cool, shaded roots. How can you supply this? Situate the plant beside your porch or deck, where the stems can be out in the open but the roots are afforded some protection. Or at least mulch the root area well after planting, and position a few shade-casting shrubs or perennials in the vicinity. If you make your clematis vine happy, it'll do you proud.

TIP

Some vines, such as hardy kiwi, do better when the soil is slightly acidic; others, such as the clematis, like it slightly more alkaline, so add some lime to the planting area if necessary. To make the soil more acidic, adding sulfur or peat moss is usually the best answer. (Test your soil first; flip to Chapter 4 for info on soil tests.) But most vines are happy with average soil — which is what most people have, anyway.

Weather exposure

The majority of vines appreciate a little shelter, which can come from their support, a wall or fence, or even just the nearby plants of your garden. If you grow a vine out in the open, winds can dry it out and may tear it off its support. (In other words, vines are team players, not solo performers. But isn't that why you want to invite some in your garden?)

Planting and Supporting Vines

Planting a vine is really no different from planting either an annual or a perennial (see Chapters 6 and 7). What really matters with a vine is how you plan to support it. Whatever you choose for supporting and displaying your vines, be sure it's equal to the job. It's a pain in the neck to keep pruning back a heavy plant, a disappointment to witness a rampant vine knock down a support or cause it to lean, and a hassle to have to constantly intervene to send growth in what you consider the correct direction. Head off these problems at the pass.

In fact, your best bet is to decide on, and find a place in your garden for, a support *first;* then choose an appropriate vine. But if you choose the vine first, at least do smart, practical matchmaking with the support.

Giving vines a little backup

You may buy trellises, fences, and arbors fully or partially assembled or as a kit from a variety of sources — home and garden centers, hardware stores, and specialty catalogs. Figure 14-3 shows you a sampling of the types of supports available.

Shop around not only for the best price but also for the best quality. Support isn't the place to cut corners. Some shopping considerations follow. Make sure the support you choose is substantial enough to do the job. Many that I have seen are way too flimsy to hold up awfully long and replacing it is a chore after the vines cover it.

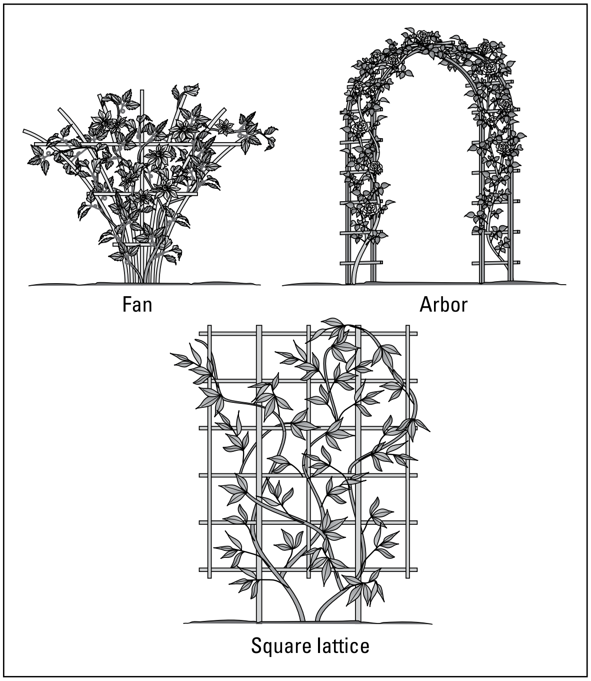

FIGURE 14-3: Typical store-bought supports for vines: a fan trellis, an arbor, and a lattice.

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Evaluating materials and construction

Supports generally come in wood (cedar or redwood are best because they don't readily rot), powder-coated metal, or plastic. Consider the support's construction: Examine the width of the individual slats or pieces, of course, but also inspect the intersections and joints. Are they strong and secure? Braces may be optional or necessary, and so may hooks that help hold the item in place (for attaching a trellis securely to a wall, for instance; some supports just can't stand upright alone).

Knowing how the vine clings to the support can give you some hints about ideal support shape or materials. See the section, "Looking at How Vines Hold On," earlier in this chapter for details.

Staying grounded: Anchorage

Remember that in order to be securely anchored in your landscape, the support has to be pushed well into the ground — a foot deep is not too much, depending, of course, on the weight of the mature plant that it'll bear. Factor in that reduction in height when looking at the support to buy as well as when envisioning it plant-draped in your garden. ***Tip:*** Reinforcing the anchors with steel rebar can add a great deal of stability to the supports.

Using trees and shrubs as living supports

Yes, a vine can twine and climb another plant, particularly a tree or shrub. It happens all the time in nature; walk through any woodland, and you can see plenty of examples. But you may be worried that the vine will steal the show. Or smother the living support. Legitimate concerns! Of course, you want to make a match. Don't pair a heavy, aggressive vine with a young dogwood tree, for example. More-mature trees are more welcoming and less daunted. Avoid vigorous twiners like honeysuckle and wisteria, which can literally strangle and squeeze the life out of a tree or shrub over time.

The match should also be aesthetically successful. Trees or shrubs that either don't flower or only have a fleeting display are best, because you don't want a clash or competition in the color department. Evergreen trees, shrubs, and hedge plants are also more accommodating this way.

TIP

One practical concern is soil. Both the vine and its host need everything the soil has to offer — physical support for their root systems, nutrients, and water. One way around this potential conflict is to start the vine growing farther away and train it toward its tree or shrub, which it'll eventually ascend. Or you may be able to place a potted vine at the base of the host plant — you just have to remember to stop by often to feed and water the vine (Chapter 19 can tell you about container gardening). In any event, ideally the soil is as good as possible for both plants so they can both be healthy and happy.

Sometimes an old tree dies or has to be cut back to a bare trunk or stump. A vine turned loose over such a relic can turn a potential eyesore into a garden highlight.

Maintaining Vines through Pruning

You may have an idealized vision of a vine in your garden, draped lushly over a trellis, pergola, or even gazebo, alive with beautiful flowers. Just realize that to get from here to there, you have to do some work. Vines don't grow quickly and to exactly the right height before stopping to coast on their loveliness.

REMEMBER

Perennial vines look their best if you cut them properly. Pruning can and does help a reluctant vine bloom. But first, make sure you've attended to the more obvious requirements:

- **Sufficient sunlight:** If the plants don't receive enough sunlight, removing some crowding stems should help.

- **Watering and fertilizing regularly:** A thirsty, undernourished vine will jettison expendable growth — namely buds and flowers — in favor of the survival of its leaves.

If all that checks out, some judicious pruning can jump-start flowering. Do the following when pruning:

- **Thin out old, unproductive wood in the hopes that new growth will fare better.** Never cut back severely. Many perennial vines bloom on *old wood,* wood that grew the previous year. That's why you don't want to chop out all of it. *New wood* simply means this year's new stems. These newcomers may yet be productive if they have room to grow and you meet their needs.

  REMEMBER

  Don't be afraid to cut back stems that are going the wrong way or refusing to remain on the support. Keep after your vine as it grows, editing out wayward stems as you spot them and training and tying the rest in the way you want. This practice is especially important while the plant is still young. Older vines get obstinate.

- **Prune to maintain the plant's shape.** The growing season is the time to trim your vine to stay within its limits. No trauma or harm to the plant should result. Early spring is the time to remove dead and damaged growth. Thin out old wood while you're at it. If you act before the vine leafs out, the wood and stems are easier to see and work with. Also, cuts don't set back a dormant plant — the coming spring growth surge will allow it to recover and replace stems.
- **Always take off dead and wayward branches at the base of the vine, or as near as you can get.** Sharp clippers or loppers make the work so much easier (see Chapter 5 for info on the tools of the trade). Remove dead branches any time you see them — winter, spring, summer, or fall. They're not going to come back to life, so timing isn't an issue. Still, the best time to remove wayward branches is spring, before the plant is fully clothed in leaves and buds. Take out branches that are turning back toward the plant's center, rubbing against others, or heading off in the wrong direction.

  TIP

  To test whether the branch is alive or dead, just scratch a small area of the bark off the stem with your fingernail or knife. The layer underneath should be green. If it's brown, the branch is a goner so remove it until you get to the area on the branch that shows the green color. You can use this technique as an indicator of living tissue for all woody plants.

- **Do minor pruning in the late fall as top growth dies back.** You don't want to stimulate more soft growth that would likely get killed by winter temperatures.

Looking at Groundcovers

A *groundcover* is a low-growing plant that naturally forms a colony or mat, making a living carpet in your garden. Groundcovers can be real problem-solvers, growing where nothing else will (including lawn grass) and sprucing up otherwise undistinguished or difficult-to-landscape areas. Height is generally under a foot or so, but more important to you is whether the plant can do the job you ask: provide good-looking coverage of its appointed spot. As soon as the groundcovers are well established and growing densely, they'll block out weed growth.

In any event, the more you know about groundcovers, the more you may be sold on them. They're some of the most useful, easy-to-care-for plants you can have. These sections give you what you need to know.

Examining groundcover varieties

Gardeners can deal with various types of groundcovers — almost a staggering variety — so a good way to start is to make your choice based on growing conditions already present in your yard. You still may have to make a few improvements prior to planting, such as cutting back encroaching or overhanging branches or making soil amendments, but the idea is to match the plant to the site. That way, the groundcover can prosper, and you can congratulate yourself on your gardening savvy.

The following is a sampling of the various groundcover forms and functions that may be available in your area. I then recommend groundcovers suited to each cultural condition.

Sunlight

Knowing the number of hours of sunlight your garden space gets in a day helps you choose groundcovers that will perform best. Full sun means 8 to 10 hours a day of direct sun. Here are plants that work in sun, shade, and the in-between:

- **Full sun:** Cheddar pink, candytuft, ice plant, rosemary, blue rug juniper, potentilla, creeping thyme, and sempervivums
- **Partial shade:** Epimedium, bearberry, plumbago, cotoneaster, Aaron's beard, liriope, sedum, and creeping phlox
- **Full shade:** Ajuga, European wild ginger, ivy, lily-of-the-valley, pachysandra, periwinkle, and sweet woodruff

Drainage

Another important factor is drainage. Some groundcovers thrive in dry condition whereas others require more regular moisture:

- **Dry or well-drained soil:** Sedum, prickly pear, pachysandra, ajuga, creeping thyme, and bush cinquefoil
- **Moist ground:** Plumbago, liriope, epimedium, creeping phlox, European wild ginger, and lily-of-the-valley

Basic appearance

You need to decide what affect you trying to create with your groundcovers, such as:

- **Shrubby-looking:** Cotoneaster, bush cinquefoil, and juniper
- **Delicate-looking:** Epimedium, creeping phlox, and sweet woodruff
- **Evergreen:** Ivy, pachysandra, creeping juniper, periwinkle, sweetbox, and skimmia

Some special features

Some vines and groundcovers offer specific attributes such as:

- **Edible parts:** Cheddar pink (flowers), sweet woodruff (leaves and flowers), thyme (leaves and flowers), and creeping rosemary (leaves and flowers)
- **(Inedible) berries:** Cotoneaster, bearberry, sweetbox, skimmia
- **Attractive or showy flowers:** Candytuft, creeping phlox, epimedium, periwinkle, sweetbox (fragrant), skimmia, and lily-of-the-valley
- **Handsome foliage:** Epimedium, lilyturf, ivy, and pachysandra

Dry shade

Trying to grow plants in dry shade is extremely challenging. Here are a couple vines that can survive and even thrive in this setting:

- Epimedium
- Pachysandra

Bad actors

You should avoid a few groundcovers like a plague. These plants grow very aggressively and quickly crowd out other plants. Included in this group of garden thugs are the following:

- Bishop's weed/goutweed (plain and variegated leaf forms)
- Chameleon plant
- English ivy
- Evening primrose
- Wintercreeper

Enjoying flowering groundcovers

Like other perennial plants, many groundcovers bloom — some just for a week or two, some on and off for many weeks. A low-growing but flower-studded display adds a lot of charm to a garden. Just make sure the color fits in with its surroundings.

Oh, yes: Be patient — let the groundcover get established for a year or two before expecting a good flower display. Favorite flowering groundcovers include cheddar pink, candytuft, potentilla, plumbago, Aaron's beard, creeping phlox, lily-of-the-valley, and periwinkle. Many of these are excellent paired with spring-flowering bulbs and indeed help cover up or distract from their fading foliage. For more information on bulbs, check out Chapter 8.

Good growing conditions (especially fertile soil and ample sunshine) and consistent water inspire the best flowering performance.

TIP

Groundcovers may take a few years before they really take hold. Hence, make sure you eliminate any weeds before you plant the groundcovers in order to let them establish themselves without being infested with weeds. You may want to lay down landscape fabric over the area where you plan to plant groundcovers. Slice or cut holes in the fabric to accommodate the groundcover plants. To make it look finished and more attractive you can cover fabric with an organic mulch like hardwood bark or pine straw like in Figure 14-4.

Taking foliage color into consideration

A lot of garden color flows from nature's bounty of green, and sophisticated garden designs often rely on green's infinite variety — from rich mint green to apple green to chartreuse and every shade in between. Mix and match various greens within a groundcover display, and you can enjoy a rich tapestry:

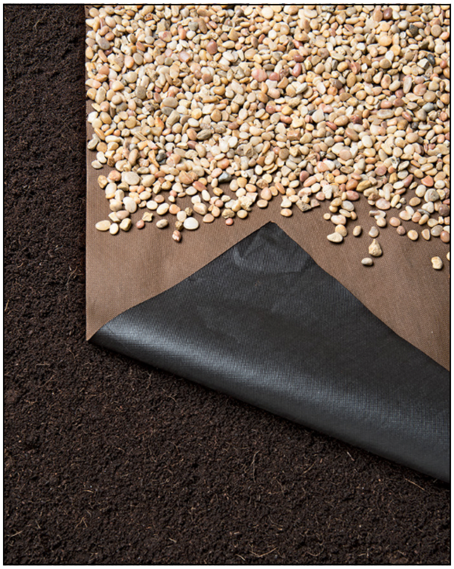

FIGURE 14-4: Install landscape fabric to prevent weed growth and cover with mulch.

Photo courtesy of Gardener's Supply Company

- **Variegated leaves:** Particularly in shade, leaves that are dappled, spotted, striped, or rimmed in white or gold really stand out and add welcome sparkle. Try lamium.
- **Purple, red, or burgundy leaves:** These colors have the effect of anchoring and giving solidity to groundcover displays because they look rich and substantial. Try heuchera, heucherella, or ajuga.
- **Fall color:** Like trees and shrubs, some groundcovers have good-looking foliage when the weather starts to turn cold. Try bearberry, cotoneaster, lowbush blueberry, or sedum flowers.

TIP

For a huge range of glorious leaf color combinations, check out the heucherella hybrids. They're a relatively new development. It's amazing how their parents — heuchera and tiarella — who were frankly quite bland, give such dazzling offspring, thanks to the diligent efforts of plant hybridizers.

Seeing how groundcover spreads

A good groundcover is one that gets right to work, growing ever-outward and filling its assigned area. The right growing conditions, including decent soil and adequate water, certainly help this process along. But take a closer look at the groundcover you're considering. Its means of spreading is worth knowing so you can encourage it (and should it become too eager or rampant in time, so you can manage it or rein it in). The following sections tell you a bit about how groundcovers reach out.

Branching out from the crown

A groundcover that expands outward from the crown sends out stems that get ever-longer over time, but you can trace one all the way back to the center of the original plant. Such groundcovers may need to be anchored or pegged in place at intervals to keep them where you want them or to guide them (see the section, "Keeping groundcovers in shape," later in this chapter). Examples of plants that branch out from the crown include creeping thyme, cotoneaster, and periwinkle.

Sending out new roots

If the groundcover sends out roots along the stem or at nodes, as the plant stems travel along the ground, new roots may drop down opportunistically into the soil at intervals. These new roots generate a new young plant. You can separate these young plants from the originating stem and even move them if you want; just be sure to treat them as gently and indulgently as any seedling. Of course, this ability can become a liability over time as the plant makes inroads into places where you didn't want it to go; in such a case, cutting back the advancing edge, especially early in the growing season, is often necessary. Examples of plants that shoot out new roots include ivy, wintercreeper, and pachysandra.

Self-seeding

If a groundcover flowers and seeds follow by season's end, the plant's natural inclination is to drop them in the vicinity. This practice means a new crop of seedlings by next spring — and thus you have a self-seeding groundcover. Assuming you can count on this ability, you can get away with planting fewer individuals at the outset. Examples of plants that usually propagate by seed include epimedium and bearberry.

TIP

For a more natural look, setting groundcover seedlings out in neat rows makes your display look more like a crop or vegetable-garden plan than the carpet you seek. For best results, stagger the rows and make sure all plants are equidistant from one another in all directions. Instead of a large square or rectangle, grow groundcovers in a natural-looking swath.

Considering what groundcover takes up

Because the size definition of a groundcover is pretty loose, you're free to choose whatever appeals to you. But of course, the plant should fit whatever you want to get out of the site. Mature-plant dimensions are, or should be, on the plant tag or container or included in a catalog's plant description. Otherwise, you can certainly look it up in a reference book or online. ***A word of caution:*** Different cultivars of the same type of plant are not always created equal. For instance, although some cotoneasters lay low and sprawl, others are practically bushes.

Here are your size options and what they can do for you:

- **Taller groundcovers:** Ground-covering plants that grow up to 1 foot or more in height have the advantage of creating a barrier. Pedestrians, kids on bikes, and pets are less apt to pass through. So use such plants at property lines, in an unfenced front yard, or even to landscape a curb strip. Examples include candytuft, creeping juniper, potentilla, bearberry, plumbago, hypericum, and some varieties of liriope.
- **Intermediate groundcovers:** These groundcovers are of moderate height, say, 8 to 12 inches high at most. These plants are ideal for creating low-maintenance sweeps and swathes, in shade or out in the open. You can place taller plants, including perennials and shrubs, beyond or among them — effectively, intermediate groundcovers simply set the stage. Examples include some varieties of liriope, heuchera, heucherella, feverfew, forget-me-nots, epimedium, lily-of-the-valley, creeping phlox, and candytuft.
- **Low-growing groundcovers:** True carpeters, under 6" high or even less, are better in broader, more irregular-shaped settings such as under shade trees, in a side yard, or flanking a walkway or entrance area. They can create a transition from hard surfaces to garden. When established, some withstand foot traffic, some do not. Examples include creeping thyme, cheddar pink, sedums and sempervivums, ajuga, and sweet woodruff.

REMEMBER

In terms of spreading, knowing the ultimate reach of a single plant is worthwhile simply so you know how many you need to plant. The goal is for them to mix and interlink and overlap so that, ultimately, you can't distinguish individual plants. If you overplant, you can yank out surplus plants. If you underplant, on purpose or not, fill in the open areas with weed-suppressing mulch until the plants reach their mature size and can inhibit invading weeds.

You can buy fewer plants and space them a foot or more apart and wait for them to fill in whatever way they will (which, depending on the plant, its growth rate, and the hospitality of the site, can take one or more seasons). If you're impatient or in a hurry, you can get more plants and space them closely so the carpet fills in well in the first year.

Exploring site considerations

Some groundcovers are well-adapted to challenging growing conditions. So rather than struggle to change or improve that troublesome spot in your yard, why not turn it over to a groundcover that's likely to thrive? Here's what to look for in the site you have in mind:

- **In the shade:** The quality of life in shady areas varies: Soil may be thin or poor or it may be organically rich; the area may have some sun; tree roots may hog all the water and nutrients; or the area may be naturally damp. So choose your groundcover also based on what kind of growing conditions are available in addition to the reduced light. Try ajuga, European or wild ginger, lily-of-the-valley, pachysandra, periwinkle (vinca), or sweet woodruff. Make sure the area is cleared of competing weeds and the soil is organically rich.
- **In dry soil:** Sandy or gravelly soil may be your lot, or hot sun may bake the ground even if it isn't poor-quality. Hot sun and periods of drought may be factors. Luckily, some plants stand up to such difficulties in style. Try sedum and sempervivums, pussytoes, potentilla, or bearberry. Make sure the area is cleared of competing weeds and that you water the young plants until they're established, at which time they'll be drought-tolerant.
- **In poor soil:** Ground that's perpetually infertile (and that would be a nuisance or too much work to improve) can still host certain groundcovers. These plants hail from poor-soil areas in the wild and adapt to similar conditions in a garden setting. Try creeping thyme, sempervivums, or pachysandra. Clear the area of obstructing and competing weeds first, and water the young plants regularly until they're established.
- **On a slope:** Notoriously difficult to landscape, a slope allows water to run over and through it, no doubt carrying away both valuable moisture and nutrients that may have otherwise sustained some plants. Don't despair. A few groundcovers don't mind life on a slope; these stalwarts grab on and stay, beautifying the area even as they prevent future erosion. Try juniper, periwinkle, bearberry, or cotoneaster. Either terrace the slope or erect some soil berms to help the plants retain water while they're getting established.

  TIP

  When planting a groundcover on a slope that already has existing vegetation, don't dig up the whole slope. Just do individual planting holes. When the newcomers start to spread, gradually yank out adjoining plants to make way for them.

For additional color, you can interplant spring-blooming bulbs in with an evergreen groundcover. The groundcover will hide wilting leaves as the bulb display fades. Smaller growing varieties of daffodils are an especially good choice because the unsightly foliage is quickly hidden by the groundcover and daffodils will shine for many years with not much care. See Chapter 8 for more info on bulbs.

Planting and Maintaining Groundcovers

Planting groundcovers is like planting annuals and perennials (see Chapters 6 and 7), though you want to pay careful attention to how much the mature groundcover is expected to spread so you can gauge how close or far apart to plant the individual plants. When they're in the ground, though, the truth is that groundcovers actually don't need much care — which is a big reason why people grow them. But a little attention every now and then, and especially at planting time, goes a long way toward having a handsome display. Read on. (See Chapter 4 for some general info on watering, fertilizing, and mulching.)

Watering

Although most groundcovers are resilient characters, no young plant can gain a foothold and thrive if you allow it to dry out. Regular, consistent watering, especially in the early days, is essential.

A good, gentle, deep soaking — as from a soaker hose or a sprinkler — is better than frequent but shallow watering. You want your groundcover roots to go deep, not just to anchor themselves in place but also to be able to tolerate the heat of summer and periods of drought.

Fertilizing

Feeding groundcovers usually isn't required. The majority of groundcovers emerge as tough, vigorous plants without any extra help. However, if growth seems thin, leaf color is pale, and flower production is disappointing, you can dose them every now and then with a general, all-purpose garden fertilizer to boost performance. Always follow the label directions regarding dilution and timing.

Mulching

Mulching on planting day is important! Without a doubt, mulching is the single most valuable and helpful thing you can do for your groundcover display. Lay mulch down on planting day around the seedlings to keep encroaching weeds at bay and to help retain soil moisture.

If you've spaced the young plants widely and are banking on their filling in the open areas in time, mulching is also key. Weeds love open space and tend to take advantage faster than you may believe. So cover the exposed areas in your display with 1 to 2 inches (or more) of mulch. Replenish as needed. In time, your plants will indeed fill in and the mulch will simply break down and contribute texture and perhaps organic matter to the area's soil.

Keeping groundcovers in shape

Plants bounce back from cuts better when they're growing strongly, so it stands to reason that the best time to prune a rampant grower (or where warranted, mow) is at the height of the growing season — summer, in other words. Don't, however, make the cut on a blazingly hot day or during a prolonged dry spell, or the surviving plant parts may suffer.

Groundcovers that exceed their allotted boundaries can and should be cut back as often as necessary. Start early in the gardening year and keep after them with regular trimming; if you wait till late summer or fall, you may have a major hacking job on your hands.

If your groundcover spreads by branching out from the crown (see "Seeing how groundcover spreads"), you may want to peg the vine in place. Simply arch a piece of the long stem and pin it to the ground with landscape staples, which are just U-shaped pieces of metal that you can buy or make from pieces of metal coat hangers. After a month of so this, the stem that touches the ground will sprout roots and become its own plant.

Getting weeds out (and keeping them out)

Most weeds are sun-lovers. The good news is that — depending on its eventual mature height — your groundcover should be able to defend itself, at least somewhat, by shading out weeds. The ultimate defense against weeds in a groundcover display is thick growth. Eventually your plants should dominate.

However, unless your groundcover is a naturally thick, dense grower, weeds can and often do insinuate themselves into the display. Weedy invasion isn't just unattractive. Those weeds are competitive thugs and that grab the soil nutrients and moisture that your plants need and even shade out necessary sunshine.

There's only one remedy: Yank out the interlopers. You can't use an herbicide because you'd endanger the desirable plants. No, you have to wade in and pull out the weeds. You can add young weeds that haven't gone to seed to your compost pile. Weed after a rain or after a good soaking watering, and the invaders come out of the ground more easily. Then get rid of them. Young weeds are easier to pull out, but you have other practical reasons for an early assault: Young weeds hopefully haven't yet started to reproduce, whether by runners or seed. Get them out of there before they can increase their numbers!

4

Producing Your Own Produce

IN THIS PART . . .

Discover the wide range of types and varieties of veggies that are available for you to grow in your garden.

Uncover the secrets of how to start your veggies indoors to extend your growing season.

See how you can grow the best tomatoes and other veggies that are fresher and more delicious than any you can buy at the grocery store.

Discover tips and techniques that can make your veggie garden the most productive that it can be.

Spice up your life with fresh herbs from your garden to add flavor to any dish.

See which tasty fruits are easiest to grow and which are the most rewarding.

IN THIS CHAPTER

- **Looking at veggies and vegetable-garden fruits**
- **Getting seeds and transplants**
- **Preparing your bed, sowing seeds, and planting**
- **Making safe compost for edibles and feeding your food**

Chapter 15

Food, Glorious Food! Raising Your Own Veggies

For the cost of a packet of seeds, you can have your own, homegrown produce. Of course, there's more to it that! The requirements are simple: good soil, moisture, full sun, and some good hand tools. This type of gardening is usually called vegetable gardening, even though it also involves growing items that are technically fruit, such as tomatoes and melons (Chapter 18 can fill you in on growing traditional fruits and berries). Growing your own produce — or vegetables, as it were — can be fun and easy for the beginner gardener. This chapter gives you the basics. If you want even more information, check out the newest edition of *Vegetable Gardening For Dummies* by Dave Whitinger and the National Gardening Association (John Wiley & Sons, Inc.).

If you're new to vegetable gardening, you may have a vague sense that it's complicated — seeds to start indoors and other things to sow outside or plant right into the ground; garden layouts that deliver the best results somehow; weird insect pests; and the mysteries of harvesting — When? How? Should you cure (dry the harvest)? Relax. Start small, taste success, and let your knowledge and triumphs grow from one year to the next.

Growing your own veggies really isn't and shouldn't be about saving money. It's about freshness (and thus nutrition; freshly harvested vegetables are always nutritionally superior to anything you buy at a supermarket — even at your local farmer's market). And it's about flavor — oh boy, is it about flavor! Raising your own food is also a healthy exercise, and it meets a primal need.

Perusing the Varieties of Veggies

Lots of wonderful and worthwhile types of vegetables are available — too many to list, really, but they're fun to explore. Read this section with the goal of figuring out what you may want to grow where you live. Favor vegetables that are too expensive at the store or never available locally. Treat yourself to new foods, ethnic vegetables, or enticing variations on old standbys.

Vegetable varieties vary in many ways. That's what makes vegetable gardening possible for everyone and keeps it so interesting. You could garden all your life and still not get around to growing all the tempting choices that would prosper in your region.

REMEMBER

Days to maturity refers to the time elapsed between sowing a seed and picking the harvest for those veggies that are directly sown. Something like a radish or mesclun salad mix can accomplish this in 30 days or less. For plants that are normally grown from transplants, like peppers and tomatoes, the maturity time dates from when the small plants are planted in the ground until they bear.

Usually varieties of the same vegetable are ready at around the same time, give or take a few days. If you have a big gap, there's an explanation. For instance, 'Easter Egg' radish is ready in 25 days, but 'Summer Cross' takes 45 days because it's one of those giant white Oriental daikon types.

The days-to-maturity figure is relative — it's a prediction. Results vary according to your climate and the conditions in your garden. So, consider it a ballpark figure or a way to roughly plan how fast some veggies are ready to eat relative to others.

Growing vegetables by seasons

Matching your vegetables to your season length is sensible advice. If your growing season is approximately 90 days, growing anything billed as maturing in that amount of time or less ought to be easy. If you push the envelope, be prepared to help that variety with an early start indoors or some extra coddling in the fall. With experience, you can find out what you can and are willing to do.

First, though, get an idea of the growing seasons that you must contend with (for info on growing season, see the frost zone info in Chapter 3). Typically, the vegetable-gardening season is summer, bookended by late spring and early fall. Gardeners mark the start by the last spring frost date and the finish by the first fall frost date (although some crops, like parsnips and kale, can stay out in the cold a bit longer and even gain improved flavor).

Your local weather forecaster may announce the frost date each spring (last frost) and fall (first frost), or you visit your local garden center or contact your Cooperative Extension Office and ask. The dates vary somewhat from one year to the next.

If your growing season is long and warm, you can get started earlier and maybe even plant two or three rounds of crops. You may, however, must contend with hot, dry weather at the height of summer, which is stressful for some vegetable crops (so mulch them and supply extra water).

If your growing season is short, you can still have a very bountiful vegetable garden. Choose vegetables that mature faster and try some season-extending tricks. Here are two favorites:

- **Start seeds early indoors or in a cold frame.** A *cold frame* is basically a box made of such materials as wood or concrete blocks covered with a glass or plastic sash that protects smaller plants from extreme cold and wind. In this structure you also can *harden off* (toughen up the plants to adapt them to colder temperatures) plants, overwinter less cold-hardy plants, force spring bulbs, and grow cool season veggies through the winter. Doing so extends your growing season in the fall and spring, even into winter. In many parts of the world you'll be able to grow plants in it year-round, especially if you add a simple soil heating cable. Then your cold frame becomes a *hotbed,* which is now a mini greenhouse. After you have a cold frame or hotbed, you won't ever want to be without one. Figure 15-1 shows how you can use a cold frame.
- **Use plastic coverings (from row-cover sheeting or tunnels to cones to recycled milk jugs to "water wall" wraps) to keep a plant and its immediate soil nice and warm.** See Figure 15-2.

You can grow some vegetables during the winter. Yes. Really! In mild climates, you can enjoy kale, carrots, leeks, and root vegetables all winter long. You may have to mulch them and then poke under to harvest but, hey, it's worth it! You can even sow salad greens in October and harvest extra-early in spring. Table 15-1 gives an overview of which vegetables tend to do better during which seasons.

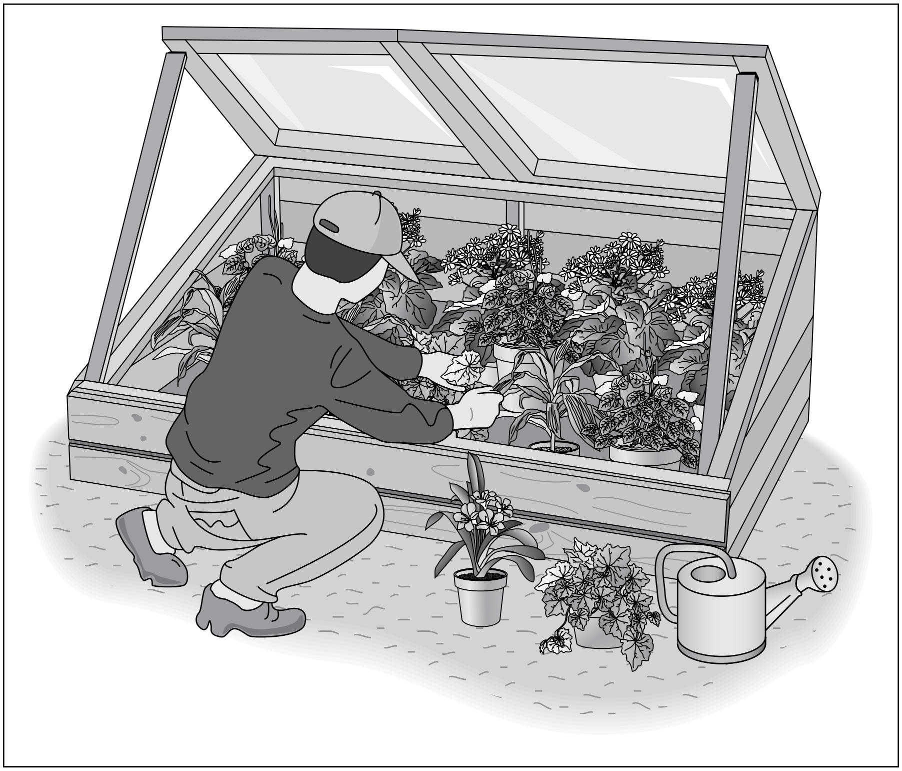

FIGURE 15-1: Cold frames can make gardening a year around affair.

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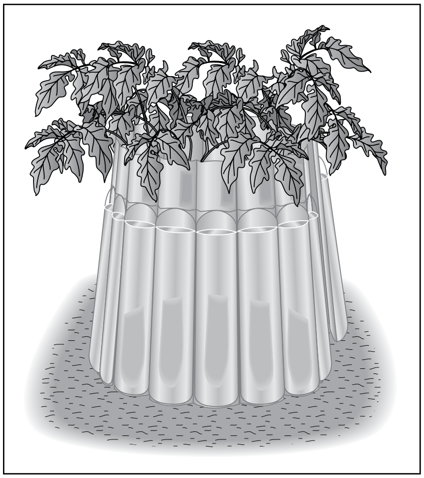

FIGURE 15-2: A water wall, consisting of plastic sleeves filled with water, offers cold protection.

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TABLE 15-1 Ideal Seasons for Growing Vegetables

Type	Description	Examples
Cool-season vegetables	These plants tolerate some frost and temperatures between 55 and 70°F. As such, they're fine choices for gardeners in more northern areas or, in milder climates, for growing in a cool spring or fall.	Asparagus, beets, bok choi broccoli, Brussels sprouts, cabbage, carrot, cauliflower, collard, endive, kale, kohlrabi, lettuce, onion, Oriental greens, parsnip, peas, potato, radish, Swiss chard, spinach, turnip, and turnip greens
Warm-season vegetables	These plants are readily harmed by frost; they also fare poorly in cold soil. Grow these plants in temperatures ranging from 65 to 80°F. They're good in the South and West and elsewhere during the height of summer.	Beans, corn, cucumber, eggplant, melons (muskmelon/cantaloupe, watermelon), bell pepper, various sweet and hot peppers, sweet potato, pumpkin, squash, sweet corn, and tomato
Perennials	These edible plants live from one year to the next, typically producing good crops their second or third seasons and thereafter. You can grow them in most climates, providing a protective winter mulch if warranted.	Asparagus and rhubarb

In planning a veggie garden, think ahead to what your favorite vegetables are and how you will make use of them. Focus on those delectables that you use a lot or that you like but are expensive or difficult to find in your local market. Maybe it is ethnic vegetables, or ones that are particularly ornamental.

For example, if having a fresh tasty salad is one of your summer pleasures, try lettuce and greens of all colors and textures to give you variety (see Figure 15-3). Consider growing gourmet cucumbers or carrots to go with it. Sweet cherry tomatoes are another tasty addition that you will want to add.

Defining hybrids

You may see the term *hybrid* on seed packets and in seed catalogs. All it means is that the vegetable variety in question is a result of a cross (through pollination) between two parent plants of the same species but different subspecies or varieties. This process occurs naturally in nature as well as purposely by human plant hybridizers. Hybrids are *not* the same as GMOs (see the nearby sidebar on GMOs).

Crossing two different plants — plants of different kinds or species or families or orders — doesn't work (you can't cross a carrot with a tomato without splicing some genes). No seed is produced, or the seed that's produced is infertile and doesn't germinate. This setup is nature's way of keeping species unique and things somewhat orderly. But an early-ripening tomato crossed with an especially juicy and tasty one — yum!

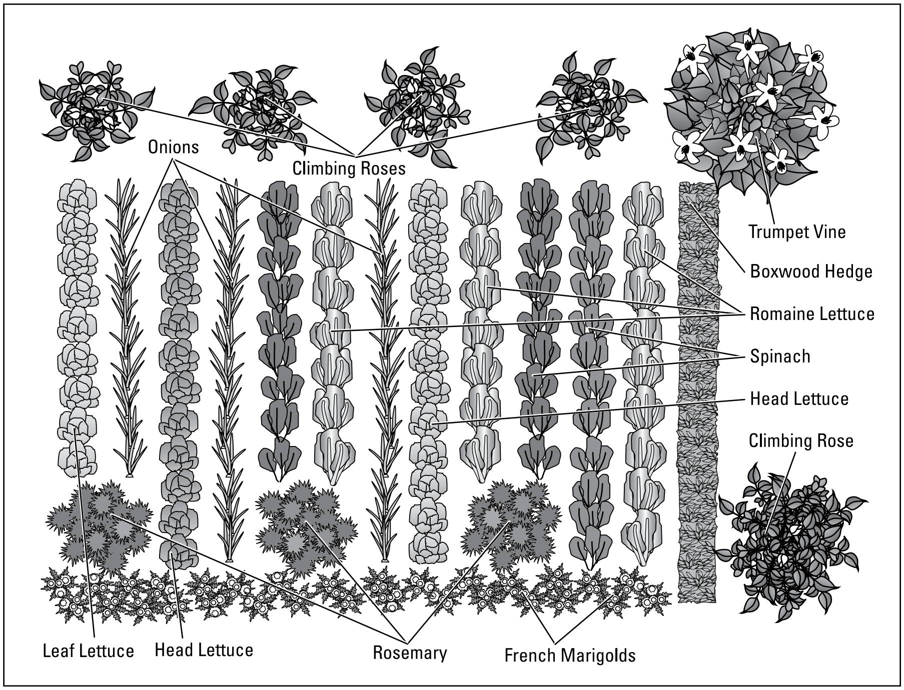

FIGURE 15-3: An ideal and ornate garden plan for veggie lovers.

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An F1 hybrid (first filial hybrid) is the first generation resulting from a cross between the parent plants; F2 and F3 hybrids, then, are the results of subsequent crosses of the crosses. Complicated! Often experimental, too. (Austrian monk Gregor Mendel laid out the basics of heredity for us in the 1800s with his experiments with garden peas.) Seed companies do this work under highly controlled conditions, winnowing out the duds and making sure the plants can replicate desirable results with precision. All you must do is buy the good seeds.

Uniformity, predictability, and disease resistance are the results of combining the genetic traits of two good parents and repeating the same cross. Hybrid offspring are often more robust and productive than either parent. Something called *hybrid vigor* often appears, a healthy exuberance that seems to result from the good qualities of one parent canceling out the bad of the other.

What's the catch? I can name two. Producing hybrid seed requires the seed company to maintain the two parent lines and often to laboriously hand-pollinate, so hybrid seeds are more expensive than the alternative (see "Appreciating heirlooms"). Also, there's no point in saving seed from a hybrid that you like and replanting it next year — it won't "come true" — that is, it won't be the same and indeed may exhibit various mongrel qualities from either of its parents. So, you're bound to purchase fresh new hybrid seeds each year if you want to grow a hybrid variety that you like.

Favorite hybrid vegetables include ‘Big Boy’ tomato, ‘Blushing Beauty’ bell peppers, ‘Nantes’ carrot, ‘Salad Bowl’ leaf lettuce, ‘Silver Queen’ sweet corn, and ‘Crenshaw’ cantaloupe melon.

TIP

I’ve found it exceedingly difficult in many parts of the world where diseases, such as early and late blight, are prevalent to be successful with growing tomatoes outdoors (not in a greenhouse) without using hybrid tomato varieties. Some say the flavor of them isn’t as good as the older nonhybrids. I can’t say I have experienced this. Certain hybrids are more flavorful than others, so if you’re particular about flavor or disease resistance, then selecting varieties that meet your criteria is important.

Appreciating heirlooms

Heirloom vegetables are varieties that people save the seed of and pass on for more practical home-gardener virtues such as excellent flavor and a prolonged harvest period. Some commercial seed companies, on the other hand, breed for uniformity as well as good shippability (thicker, tougher skins on tomatoes and squash, for instance) and ripening-all-at-once (for harvesting convenience), especially for those companies that provide seed for large scale agricultural producers. On the other hand, today vegetable breeders are developing varieties with the home gardener in mind. You may still prefer heirlooms. The choice is yours.

When a variety is called *open pollinated,* it means the seeds are the result of natural pollination by insects or wind. With veggies that have open-pollinated seeds (on-hybrid varieties), you can save the seeds and plant them again next year; they’ll be the same. Heirloom varieties are simply those that have been passed down through generations of gardeners, like any other family heirloom. Realize that older ones that are still in circulation have obviously stood the test of time and should be worthwhile.

Specialty seed catalogs have wonderful selections (do an Internet search or comb the ads in gardening magazines and send for the catalogs). Many mainstream catalogs are offering more and more heirloom vegetables in response to popular demand. You can also nose around your neighborhood gardeners, community gardens, and/or farmer’s markets to meet other like-minded gardeners who can share their seeds and knowledge of them.

Whether it’s a nice tradition, a survival skill, or a way to honor gardeners of the past, saving seeds from your favorite vegetable varieties is a fun and rewarding skill. Depending on what else you grow in your garden, cross-pollination can interfere and must be prevented, either by covering flowering crops (to keep insects and bees from tampering or the wind from contaminating) or staggering planting dates. At season’s end, you must harvest ripe seed, extract it from its fruit, dry it, and store it in a cool, dry place until you need it next year. If you'd like to give seed-saving a try, I suggest starting with squash or pumpkins — they're easy. For details on techniques as well as much more fascinating and useful information on heirloom vegetables, check out Seed Savers Exchange (`www.seedsavers.org`).

What's the catch with heirlooms? Well, they're not as perfect or uniform-looking. Because heirlooms aren't commercially bred, they may be more colorful and more variable in size and shape than their hybrid counterparts. Also, their skins may be thinner, so you get great flavor, but they don't travel well and may be vulnerable to bruising — or they may have lots of seeds inside (as in certain squashes and pumpkins), causing you a bit of extra work to separate out the edible parts.

GMOs (GENETICALLY MANIPULATED ORGANISMS) OR GENETICALLY ENGINEERED PLANTS: ARE THESE GOOD GUYS OR BAD GUYS?

This issue sure is an emotionally charged one! Most people are either strongly for or against this issue. There are few fence sitters.

Here are the common points made by those who support genetically engineered plants:

- Using them can lead to higher yield and less pesticide use.
- Genetic engineering is merely an extension of traditional breeding.

And here are the common points made by those who are against genetically engineered plants:

- As with all new technology, could GMOs lead to unknown side effects to the environment and to humans?
- It uses artificial techniques so do GMOs dangerously alter genetic material?

Whatever you decide is up to you. Measure the evidence and make your own choice.

So far, this entire issue of GMOs won't affect what varieties you grow because only large-scale agronomic crops like corn, wheat, rice, and soybeans, are being genetically altered, mostly because that's where the big money is and this process is very expensive.

Favorite heirloom vegetable varieties include ‘Moon and Stars’ watermelon, ‘Tom Thumb’ baby butterhead lettuce, ‘Gold Nugget’ winter squash, ‘Ragged Jack’ kale, ‘Super Italian Paste’ tomato, ‘Brandywine’ tomato, ‘Cherokee Purple’ tomato, ‘Henderson’s Bush’ lima bean, ‘Kentucky Wonder’ beans, and ‘French Breakfast’ spring radish. The list goes on and on.

Designing for Dining and Getting Your Vegetable Garden Ready

Most produce is, of course, grown in a vegetable garden, and it’s always best to get your garden started before even acquiring your plants. Of course, you must dig into the soil and work in organic matter. One of the first steps, however, is designing your garden.

Working with the sun: Where to plant vegetables

Most fruiting vegetables like the environment sunny and open — the soil is warm, light is plentiful, and they grow easily, developing and ripening their fruit with minimal stress or impediments. (If conditions are not ideal, they make less fruit and take longer to ripen — also, the plants may lean or grow toward the light source in a bid to get as much as they can.) Examples of sun-loving vegetables include tomatoes, peppers, squash, beans, okra, eggplant, and corn.

TIP

To maximize needed sun, site your vegetable garden in a south-facing spot; plant taller plants to the north end so they don’t cast shade over their shorter fellows.

Some vegetables are less dependent on full sun, which can fade or dry out their foliage or slow their growth. Or the plants may just like cooler temperatures. Vegetables that gardeners grow for their leaves fall into this group, as do ones with edible roots. Examples include lettuce, spinach, mixed greens (mesclun), chard, potatoes, carrots, and turnips.

To maximize sheltering shade, grow these vegetables in an east- or west-facing garden; site taller plants and objects (including trellises, teepees, and caged or staked tomatoes) in front of and to the south of these shade-lovers. Or grow these plants earlier in spring or in the fall — assuming you have enough time to ripen them before winter comes, that is — times of the year when the sun is lower in the sky.

Sketching your plan

The best planning advice is simple: Start small. Just be sure you locate in a spot where expansion is possible, should you want to make a bigger garden in ensuing years. As for actual size, it depends on what you want to grow. Just to give you a general idea, here's what you can put in the following standard-size gardens:

- A 6- × 8-foot plot can support a couple tomato plants, maybe some bush beans, and some lettuce.
- A 10- × 18-foot plot can hold all that, plus a couple space-consuming squash plants and cucumbers, and maybe some carrots or beets.
- A 20- × 24-foot plot can hold all that, plus peppers, leeks, broccoli, turnips, and maybe some herbs as well.
- A 40- × 60 plot allows you more of everything, plus some bigger items, such as corn (corn isn't worth growing unless you can have a dozen or more plants because otherwise they don't pollinate or pollinate completely, and you end up harvesting gap-toothed ears) and asparagus or rhubarb.

Sketch your vegetable garden plan on paper ahead of time. Figure out how much space to allot to individual plants — and don't forget to allow for space between the rows, or paths, so you can tend the plants. (Mature sizes of various vegetable varieties are noted on seed packets and often in catalog descriptions.)

TIP

Allow for succession planting: If something is harvested early in the summer, lettuce, say, or peas, you can then free up that space for another crop, such as carrots. Succession planting is a good trick, but to pull it off, you may need to do some research as well as some trial and error — and be willing to invest the time and effort. See Figure 15-4 for a plan that may work for you.

REMEMBER

Intercropping, also called *interplanting*, is really simple. Just have two different plants share the same part of the garden in an alternating or checkerboard pattern. This setup can look rather nifty, but it has practical advantages as well. Smaller, faster-maturing plants can grow with larger, slower-growing ones and so you always have something to harvest. And plants that appreciate a little shade can grow in the shelter of taller ones (have pole beans next to lettuce or spinach, for example). See Figure 15-5 for an example.

Using planting patterns and systems

As much as you may like to toss a packet of seeds into a pile of dirt and let the plants grow where they fall, you may be better off working with a system. The following sections provide info on how you can design around a natural garden, raised beds, or existing landscaping.

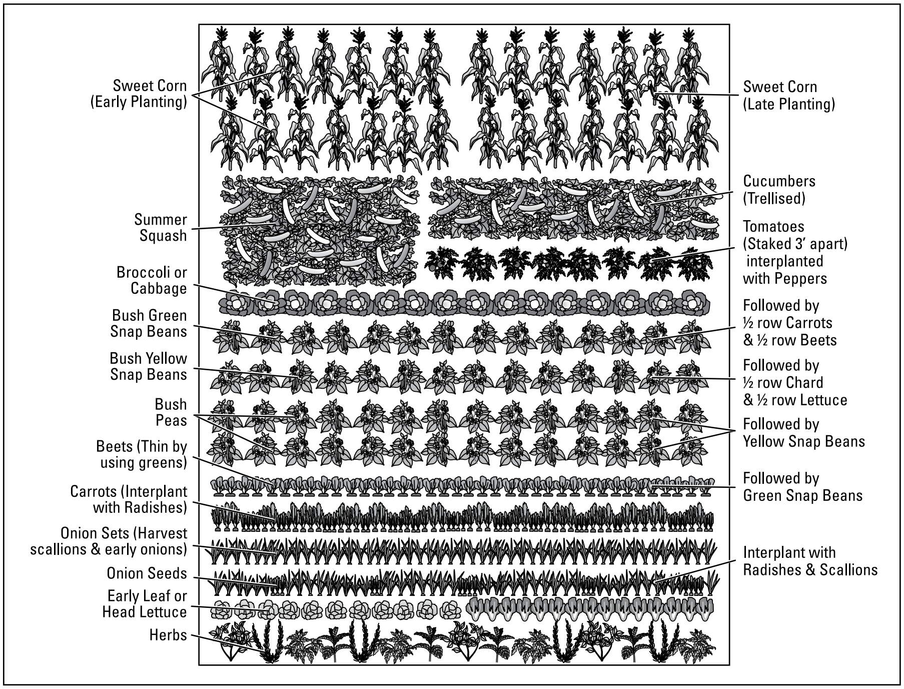
Sweet Corn (Early Planting)
Summer Squash
Broccoli or Cabbage
Bush Green Snap Beans
Bush Yellow Snap Beans
Bush Peas
Beets (Thin by using greens)
Carrots (Interplant with Radishes)
Onion Sets (Harvest scallions & early onions)
Onion Seeds
Early Leaf or Head Lettuce
Herbs
Sweet Corn (Late Planting)
Cucumbers (Trellised)
Tomatoes (Staked 3′ apart) interplanted with Peppers
Followed by ½ row Carrots & ½ row Beets
Followed by ½ row Chard & ½ row Lettuce
Followed by Yellow Snap Beans
Followed by Green Snap Beans
Interplant with Radishes & Scallions

FIGURE 15-4: Garden plan showing succession plantings.

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Natural garden beds

Natural garden beds can be in-ground or mounded up, without need of wooden edges. Either way, work the soil between 8 and 12 inches deep to accommodate the roots of most vegetables.

Natural beds don't need any kind of edging, but you do need to remove the sod if you're turning part of the lawn into a garden. It's best to remove the sod with a sod knife (a special tool that can be rented) or a sharp spade. For larger jobs, you can rent a sod cutter, which is a machine that penetrates the soil about three inches deep and cuts off the roots of the sod. It can then be rolled up and removed. For smaller jobs, you can rent a manual sod cutter, or you can use a sharp spade.

TIP

Remove the sod and then rototill or dig the ground by using long handled hand tools like a pointed shovel, spade, or digging fork. Don't try to rototill over the grass. Only larger rototillers can do this, and secondly, if you till in the grass, completely removing the grass is impossible —it will constantly re-sprout — a real pain! Refer to Chapter 5 for more about these tools.

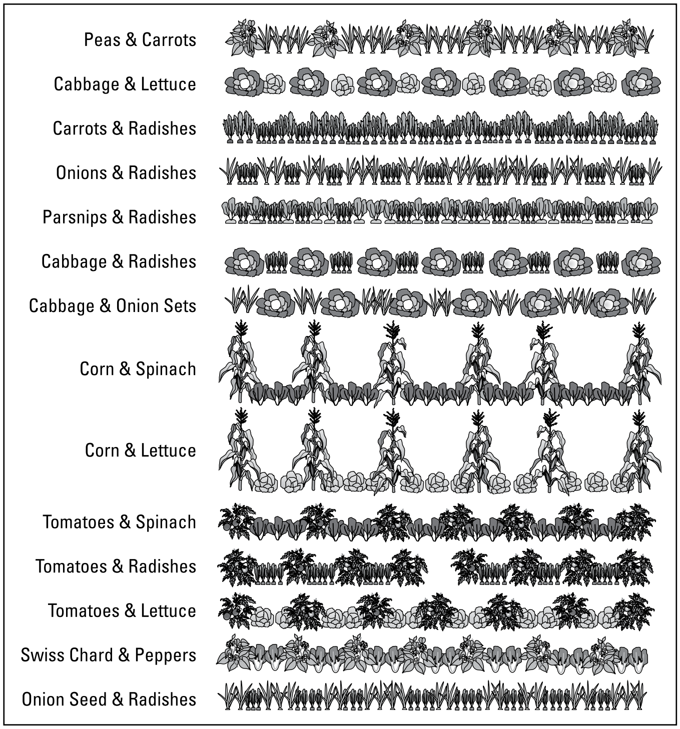
Peas & Carrots
Cabbage & Lettuce
Carrots & Radishes
Onions & Radishes
Parsnips & Radishes
Cabbage & Radishes
Cabbage & Onion Sets
Corn & Spinach
Corn & Lettuce
Tomatoes & Spinach
Tomatoes & Radishes
Tomatoes & Lettuce
Swiss Chard & Peppers
Onion Seed & Radishes

FIGURE 15-5: Garden plan showing interplanting.

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As far as other weeds go, remove as many as you can before you till or work up the soil. Then when new ones sprout remove them as soon as possible — when they're young and before they go to seed (and produce more weeds!).

REMEMBER

More ambitious vegetable gardens need plenty of paths and rows to allow access — for you, for a hose, for a wheelbarrow. Ideally, you want access from all four sides of a bed. Build pathways into your master plan when you're first sketching out the layout. Then, to clarify where the paths are and to prevent weeds from seizing the open space, "pave" the paths with a layer of straw (not hay), dried grass clippings, or gravel.

Raised garden beds

Using raised garden beds is a practical way to construct a good vegetable garden. All my vegetable and flower beds are raised. They have good drainage, the soil warms up quickly in the spring, they're easy to weed (high off the ground), and you're less likely to step on and compact the soil, so roots can grow better in looser, well aerated ground. Just make bottomless wooden boxes between 8 and 12 inches deep, set them in a sunny, flat area, fill with good soil, and away you go. You can use native soil if it's of good quality; otherwise use half native and half added compost or high quality purchased soil.

TIP

Here is a handy calculator to help you determine how much soil will be required to fill your raised bed: `www.gardeners.com/how-to/soil-calculator.7558.html`.

See Figure 15-6 for how to build a raised bed. If you use more than one raised bed, space them so you can walk between them or bring a wheelbarrow down the row. Construction tip: Brace each corner with a corner post for extra stability. To make a raised bed, first build up the earth for planting (see Figure 15-6A). Then plant your garden and put up the wooden walls to contain everything (as in Figure 15-6B and C). This prevents you from damaging your garden during planting.

Use untreated lumber. Treated wood may leach harmful preservatives, which isn't a risk you want to take when raising edibles. Rot-resistant redwood or cedar is great; other softwoods, including pine, tamarack, and cypress, can also work, but they tend to rot away after a few years and need replacing. You can certainly use plastic, composite lumber, cinder blocks, and even bales of hay to establish a box. Just be sure the walls are securely in place before adding soil to the interior.

TIP

If tunneling rodents are an issue where you garden, keep them out of your raised bed by lining the bottom with a layer of ½- or ¼-inch mesh hardware cloth wire. Use a slightly-too-big piece so you can pull it partway up the sides and tack or fix it in place.

Prepping your soil

The biggest mistake beginning vegetable gardeners make is using lousy or too-thin soil. Gardening isn't rocket science, folks (even if NASA *is* working on growing vegetables in space). Before a single vegetable begins its hopeful, potential-filled life in your yard, give it a good home! This prep work can save you untold disappointment and, perhaps more than any other factor, assure a bountiful and delicious harvest.

If you're working with a brand-new vegetable garden (or one that fell fallow and you're bringing it back to life), I suggest you stake it out and get it ready the autumn before you plan to plant. This act gives the soil and the amendments you've added time to settle and meld. It also means you have less work to do next spring.

TIP

If a fall start isn't possible or practical, go ahead and prepare the ground in spring — but don't start too early. If the ground is still semi-frozen or soggy, digging in the soil can compact it and harm its structure. How do you tell whether it's ready to be worked in? Grab a handful and squeeze — it should fall apart, not form a mud ball.

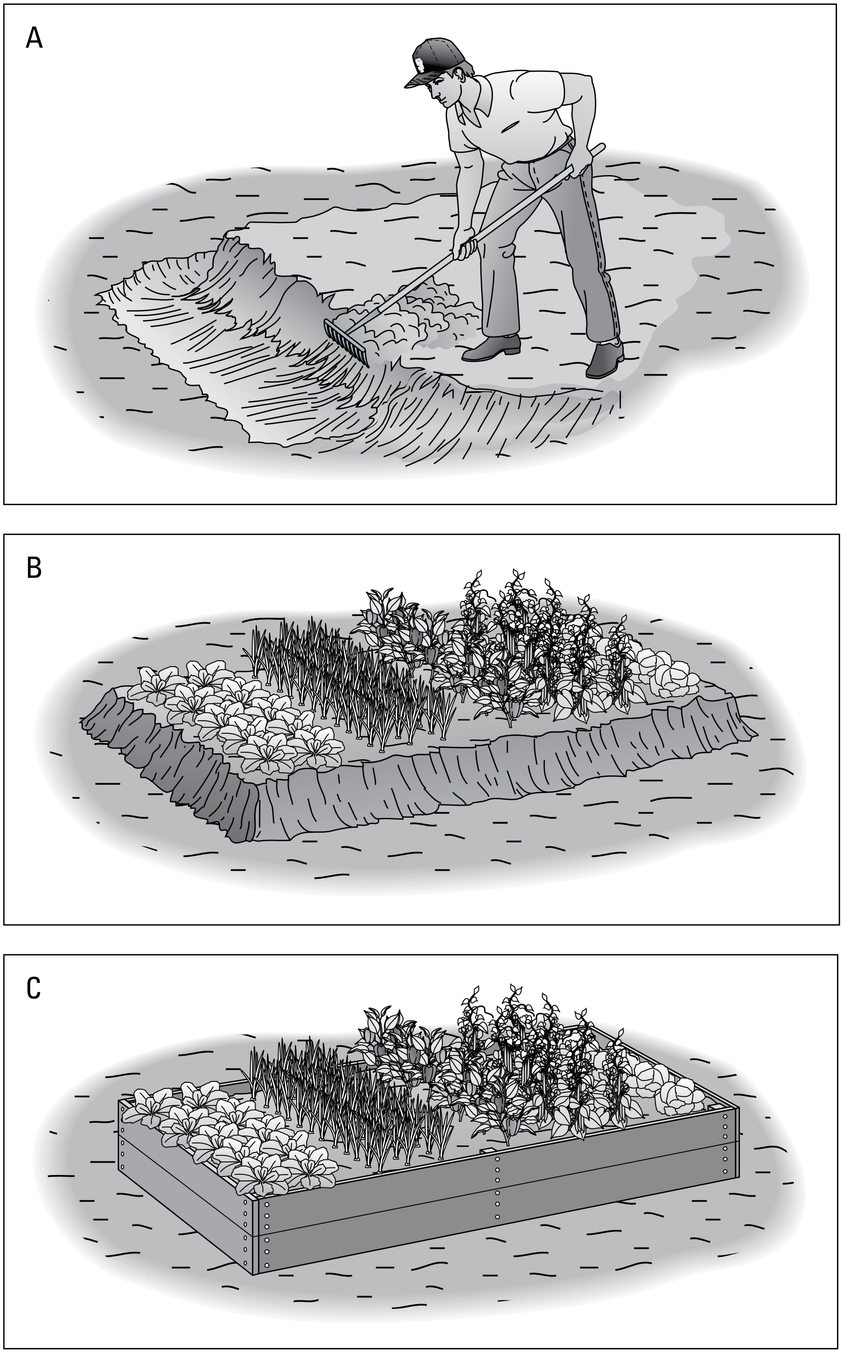

FIGURE 15-6: Making a raised bed.

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Follow these steps when preparing your soil:

1. **Dig deep.**

   Most vegetables are content with 6 to 8 inches of good ground for their roots to grow in. If you're planning to grow substantial root crops (potatoes, say, or carrots), go deeper still —because their roots grow deeper — up to a foot or more (yes, you can use a technique called *hilling,* where you mound up good soil around crops like potatoes, but this method doesn't excuse your making a shallow vegetable garden).

2. **Fill 'er up.**

   Add lots and lots of organic matter! Try compost (make your own — see Chapter 16), dehydrated cow manure, shredded leaves, pine fines, well-rotted horse manure (call nearby stables), or a mixture thereof. If your yard happens to be blessed with fertile soil, adding organic matter is less crucial, but most soils can stand the improvement. Mix it with the native soil, fifty-fifty, or even more liberally.

Here's a word about difficult soils: Maybe your area's soil is notoriously acidic, very sandy, or quite obviously lousy for plant growth. The good news is that organic matter can be like a magic bullet in that it helps improve whatever you add it to. You must replenish the organic matter at the start of every growing season or maybe even more often. (If the soil stubbornly resists improvement, resort to setting raised beds atop it and filling these bottomless boxes with excellent, organically rich soil.)

Finding Your Vegetables

Generally, most gardeners buy their vegetables as seed packets or as young transplants or container plants. People often purchase plants and seeds in the spring from a variety of places, including markets, home stores, and nurseries. Racks of veggie seed packets sprout up everywhere in the springtime! You'll notice different brands and companies and quite frankly, not huge differences in price.

Whether you choose to grow plants from seed or buy started plants may depend on cost, the kind of selection you want, when you want to begin, and the type of plant. Read on for the basics of how these beginnings vary.

Buying seeds

Seed packets are particularly popular because they help save money and provide a broader, more interesting selection. Upon purchase, or certainly upon opening a new seed packet, you quickly notice an awful lot of little seeds in there! The reasons are many: The company wants to make you feel as though you're getting something substantial for your money, and when you sow, some won't sprout or will be thinned out later.

Furthermore, you get enough for successive sowings or to save for next year (note that little seeds, like lettuce seeds, tend to dry out if stored for a year, whereas big seeds like beans can keep for several years). Keep seeds in a dry, cool (non-freezing) place until you're ready to sow them.

Certain seeds can, and should, be started indoors, well before the garden outside is awake yet — so read the labels to see whether indoor starting or *direct-sowing* (sowing outside, when the soil and weather is warm enough) is recommended for the area where you live. (See the section, "Sowing and planting your veggies," later in this chapter and Chapter 10 for more information.)

Buying nursery transplants

You can purchase transplants, container plants, or seedlings locally — at a garden center, home store, farmer's market, spring fair, or from roadside entrepreneurs — or from mail-order companies. Someone else has done the seed-starting work for you; all you have to do is choose, take 'em home, and care for them. If you can't get the plants into the ground right away, set them in a sheltered spot out of the hot sun and the wind and water them often (small pots dry out alarmingly fast, and young plants can't tolerate neglect).

Transplants are the way to go if you can't or don't want to bother with seed-starting, or if you wait till the last minute to decide what you're growing this year. They're worth the upcharge for the convenience.

Just as with seed-shopping, you can shop for different varieties (buy three different kinds of tomatoes, for example). Again, though, the selection may not be too exciting comparatively.

Ones to buy pre-started include tomatoes, peppers, and eggplants. Certain vegetables simply don't transplant well from a wee pot to the garden. Direct-sow plants like corn, beans, peas, carrots, and potatoes.

Of course, you can also create your own transplants from your own seeds. I explain how under in the section, "Starting your own seeds indoors," later in this chapter.

Planting Your Vegetables

When getting ready to plant, the first rule is to pay attention to which items are cool-season vegetables and which are warm-season vegetables (see the earlier section on "Growing vegetables by seasons"). You can start cool-season vegetables earlier and put them in the ground earlier because they're more tolerant of cooler temperatures (some can even go outdoors before the last frost). You can also plant them in late summer for a fall crop. However, you should plant warm-season vegetable transplants or sow them only after all danger of frost is past. After you figure out which veggies are which in your planting plans, you're ready to determine when to start planting. (For info on location, refer to the section, "Working with the sun: Where to plant vegetables," earlier in this chapter.) And then, of course, you're ready to plant!

Deciding when to plant your veggies

Determining the date of the last frost in the spring is your green-light date, the date when you're now free to plant warm season vegetable seedlings or direct-sow vegetable seeds into the garden. You can plant cool season seeds like peas and lettuce a little earlier. The last frost date in spring varies from year to year. Late in the summer when the evenings start to cool down is the time to plant cool season crops like lettuce, kale, and cole crops (cabbage, broccoli, and cauliflower).

Check with your local garden center or from the nearest office of the Cooperative Extension Service for more specific dates.

When to plant transplants

If you have seedlings ready to go into the garden after the soil is ready and sufficiently warmed up — seedlings of your own or ones you've bought — your garden can get off to an earlier start. This timing puts fresh food on the table sooner. In the final analysis, your garden will be more productive this year! Vegetables that you can start early indoors include cabbage, tomatoes, peppers, and eggplant.

Remember, if you start too early, your seedlings may be too big too early, making them a little hard to accommodate and care for — you may even have to start over. Here's a general list to get you started; you can tinker as you get more experience raising various sorts of seeds. Yep, get out your calendar — some counting backwards is in order:

- **Onions:** 12 to 14 weeks before the safe planting-out day (which in the case of onions is 4 to 6 weeks before the last frost)

- **Broccoli, collards, and cabbage:** 5 to 6 weeks before the safe planting-out date (which is after the danger of snow and ice is past but while nights are still chilly)
- **Lettuce:** 5 to 6 weeks before the safe planting-out day (which is 4 to 5 weeks before the last frost)
- **Peppers:** 8 to 12 weeks before the last frost
- **Tomatoes and eggplant:** 6 to 8 weeks before the last frost
- **Cucumbers and melons:** 2 to 4 weeks before the last frost

TIP

For warm season veggies I don't like to put them in the ground until the soil temperature reaches 60°F (15°C). Use a soil or meat thermometer to check the temperature. If you plant when the soil is colder, the plants will just sit there and sometimes will become stunted and can rot.

When to sow seeds directly

Gardeners generally sow seeds directly in the garden after the last frost, after the soil has warmed up and the weather seems to have settled into an early-summer groove. Direct-sowing in cold and/or soggy soil is a bad idea — it's muddy work for you, and the seeds usually sprout poorly or rot; then you have to start over. Best to wait for the ground to be warmer and more dried out.

Though you can buy tools and gadgets to help you with this work, there remains something so primal and satisfying about going out with a seed packet and digging in the dirt with your hands.

Vegetables that you can direct-sow include lettuce, onions, peas, radishes, turnips, beets, cabbage, carrots, beans, corn, parsnips, cucumber, lettuce, and tomatoes (in warm climates).

Sowing and planting your veggies

How to plant vegetables really depends on the form in which you've acquired them. Do you want to plant seeds, or do you want to plant transplants that you've purchased? Or do you want to combine both approaches and create your own transplants from seeds? Here I give you information on all three approaches, starting with creating your own transplants from seeds.

Starting your own seeds indoors

A sure way to banish the winter blues, as well as get a jumpstart on your vegetable garden, is to start some seeds indoors early. To find out how early, consult the back of the seed packet; you want to time it so you have several-inch-high seedlings in late spring, after the danger of frost in your area has passed. Refer to Figure 15-7 and follow these steps:

1. **Select a good spot.**

   In milder climates, you can sow seeds early in a cold frame or greenhouse, if you have one. Everyone else must make do so indoors. The best spot is an area out of the path of household traffic. You don't want people bumping into your tender sprouts or curious pets coming around. The spot should also be warm and out of drafts. A basement, sun porch, and spare room are all good options. Some people even raise seeds on the tops of dressers, cabinets, or refrigerators!

2. **Provide light.**

   Some seeds germinate under a thin layer of soil mix and some are pressed lightly on top, but in all cases, the seedlings that sprout need bright light to grow sturdily.

   Sunlight from a window during winter isn't usually sufficient. It's pale and limited in late winter and early spring. Providing sufficient light is critical when growing seedlings under lights. To make your seedlings grow well, use artificial light. Fluorescent is best, and a timer at the outlet can help you regulate the hours it's shining on your baby plants. For more detailed information on lights, see the nearby sidebar.

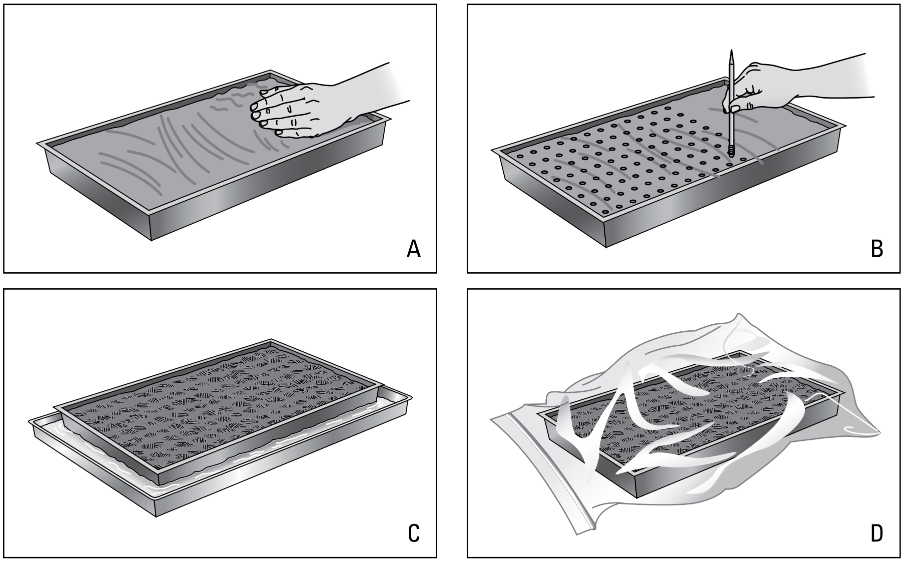

FIGURE 15-7: Using seed-starting trays.

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3. **Prepare pots or flats (which need drainage holes).**

   Begin with *sterile* seed-starting mix. (This mix is available in bags wherever gardening supplies are sold. It looks like fine potting mix.) It usually consists of peat moss and perlite or vermiculite. Fill the containers about three-quarters full of dampened, not drenched, mix (Figure 15-7A). Tamp the surface flat and level with the flat of your hand or a small piece of wood before sowing.

4. **Okay, sow!**

   The back of the seed packet can tell you how deep and whether you should cover the seeds with mix. The packet can also tell you how far apart to place the seeds. Sow carefully by hand — a pencil tip is a useful tool when placing small seeds (refer to Figure 15-7B).

   TIP

   Don't sow too many seeds! This overplanting can lead to a forest of seedlings, growing too thickly for you to thin them without damaging some.

   If you're sowing into a flat, make little furrows with the pencil tip or a finger and space the seeds up to an inch apart (see Figure 15-7C).

5. **Cover.**

   Cover the container the very day you plant. Plastic wrap is great, but depending on the size of your starting containers, you can instead use a plastic bag (see Figure 15-7D). This covering holds in warmth and humidity, giving the seeds the best chance of absorbing moisture and getting going. Don't seal too tightly, though. A tight seal causes condensed water to drip back down into the mix, making things too soggy.

6. **Check back daily.**

   Don't let the planting mix dry out, or the seeds' growth will come to a halt. The seedlings are now at a vulnerable stage. Open the bag a couple hours every few days to let the soil breathe some fresh air. Then close it back up. The best way to keep developing seedlings evenly, consistently moist is with bottom watering. Just set the container into a few inches of warm water (in the sink or a tray) and let it wick up the water it needs before returning the container to its spot.

The first little seeds usually take a week or two to poke up their heads. But what a thrill! Here's what to do now to ensure that they survive and thrive:

- **Snip away extras.** Use tiny scissors (fingernail or beard-clipping ones work well) to gently cut weaker seedlings away at soil level. Pulling, rather than cutting off can damage the roots of the surrounding seedlings. The properly spaced survivors gain better air circulation, which is important for their health, and their developing roots don't have to compete for precious resources.

- **Water from above with a fine spray.** As the seedlings grow bigger, bottom watering may no longer be practical. You can shift the flat's plastic covering on and off for ventilation — after a while, the young plants become too tall, and you must remove the covering completely.
- **Start fertilizing.** I usually use about a quarter teaspoon of most water-soluble fertilizers per gallon. If you use this water-soluble fertilizers, make sure you dilute it with water every time before you use it.
- **Check that the seedlings are well-rooted when they're several inches high.** Never tug on the stem! Gently tug on the true leaves (not the first, or *cotyledon,* leaves that come up). If the seedlings hang on and otherwise look husky, they're ready to get hardened off (see the next section).

Planting transplants in the garden

Regardless of whether you grow your transplants yourself or purchase them from a supplier, the first step toward getting them into the ground is the hardening-off process. This interim step in the life of your precious baby seedlings is a way to ease them from their plush indoor life to the realities of life in the real world — outdoors in the garden.

REMEMBER

After the threat of frost has passed, move your seedlings outside to a place that's sheltered from sun and wind. A cold frame or hotbed is ideal but not necessary. Start with an hour a day, and gradually work it up to 24 hours over a two-week period. (Bring the seedlings indoors or cover them on chilly nights or if frost threatens.) Stop fertilizing them. If you bought your transplants from somewhere else, you may be able to shorten this process by asking the seller whether they were hardened off (or if they were displayed for sale outdoors, you can pretty well assume that they were).

THE SCOOP ON LIGHTS

All lights aren't the same. In fact, the number of light types can make your head spin. I've been growing plants under lights for many years and have been trying to follow the accelerating changes happening in the lighting industry. The good news: Many different setups work. The most important factors in choosing a light setup is getting one that provides the adequate quantity and quality of light to produce optimum plant growth.

I recommend one that I've been using for years and have been pleased with the results. It consists of a fixture that is a 4-feet long (that's the most efficient and economical size)

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with four tubes or lamps, rather than two tubes (four tubes produce twice the light). The lamps or tubes are the newer much brighter and more efficient T5HO (high out) tubes rather than the standard T12 tubes found in older fixtures. Make sure you get T5HO tubes or lamps that emit the correct color or light to mimic natural sunlight. Light color is expressed in Kelvin temperature, and the Kelvin temperature will be marked on the bulbs; the ideal range is 5,000 to 6,500 Kelvin. Make sure to get units that have electronic ballasts rather that the magnetic ones. The electronic ones are more efficient, cooler, don't produce that annoying hum, and don't flicker. ***Note:*** You aren't likely to find these types of light fixtures and bulbs with these specifications in your local home improvement store. They're readily available from hydroponic or horticultural light suppliers online. See the following figure for an example of four 4-foot tube light fixture with T5HO 5000–6500 K lamps.

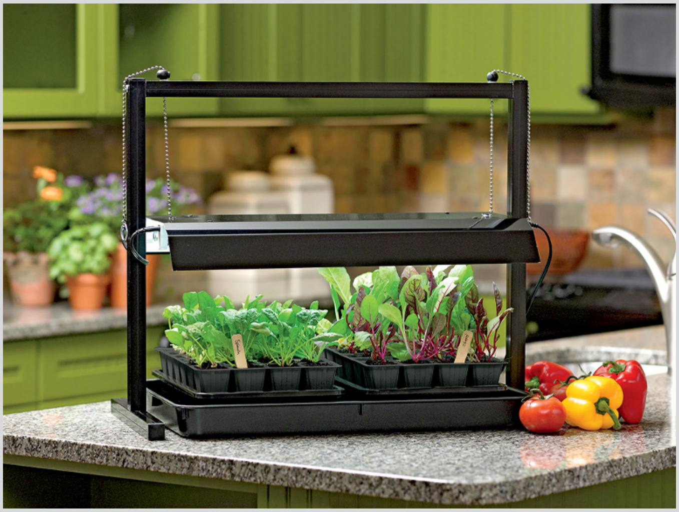

Photo courtesy of Gardener's Supply Company

With this unit you want to place the tops of the plants about 4 to 6 inches from the light. You can raise the fixture on a chain as the plants grow or you can have the light fixtured fixed about 12 inches and move the plants closer and farther away as needed by propping them up with inverted flower pots of various sizes. Keep the lights on for 12 to 14 hours a day. I suggest you use timers, especially if you're busy and not home to turn on and off the lights.

Newer LED setups are also available that can meet these criteria, so if you're interested, you can check them out from the same suppliers. In general, LED setups use less electricity, but the units themselves can cost more. LEDs will likely continue to drop in price.

When the seedlings are hardened off, you're to get the seedlings off to a good start. Ideally, work on an overcast day (or plant late in the day) when the hot sun won't stress them or you. Here's what to do:

1. **Water the seedlings well the morning you plan to plant.**
2. **Dig individual holes.**

   The holes should be at least as deep and wide as the pot the seedling comes in. How far apart to dig depends on the plant. The tag that comes with should have this information, but when in doubt, allow more elbow room rather than less. Seedlings may look puny, but if you give them a good home, they'll soon take off like gangbusters.
3. **Pop each plant out of its pot carefully, handling the seedlings by gently by the rootball.**

   Tease apart the roots on the sides and bottom so they'll be more inclined to enter the surrounding soil in their new home. Place the roots gently in their hole and tamp the soil in around them firmly to eliminate air pockets.

   TIP

   You can plant tomato seedlings deeper than they were growing in their pot; in other words, you can bury much of the stem with no harm done. Not only does this planting depth lead to better stability in the hole, but the stem also responds by making more roots along the buried part. It's a great way to handle plants too *leggy* (stretched and spindly). Just keep one or two sets of leaves above ground and gently remove the lower ones.
4. **Water; then mulch.**

   Gently soak each seedling quite well, using a wand attachment on your hose or a watering can. Then lay down an inch (2.5 cm) or so of mulch like straw or compost. Place it an inch (2.5 cm) out from the base of each seedling and outward to conserve soil moisture as well as to thwart sprouting weeds. Don't let the mulch touch the stem, or you risk insect and pest problems later on.

REMEMBER

Offer a little protection. Sudden exposure to sun and wind can stress out little plants. Get them through the first few days by setting some boxes or boards nearby to create a barrier — or set a few lawn chairs out in the garden over the seedlings. It helps.

Sowing seeds directly into the garden

All danger of frost is past, the air and soil have warmed up, and the ground is slightly damp or even somewhat dry. In other words, it's very late spring or early summer, and you're ready to sow your seeds.

Assuming that the garden area is prepared and ready to go, head outdoors one fine day with seed packets, a trowel, a planting dibble or hoe (depending on the size of the project), and something to sit on. Be prepared to get a bit dirty and sweaty and to feel the warm sun beat down on your head and shoulders as you work. Don't rush — putting seeds in this good Earth is a wonderful, soothing, productive feeling!

REMEMBER

Before planting, check the seed packet for the recommended soil temperature before planting.

Follow these steps:

1. **Make planting holes or furrows.**

   Recommended planting distances are noted on the seed packets.

2. **Follow the three friends rule — plant three seeds per hole.**

   At least one will likely sprout well. If all three do, you can thin out two of them later to favor the most robust one. Thin them out by cutting the discards off with scissors, not by pulling them up. This prevents root damage to the one you want to keep.

3. **Cover each hole as you go, tamping down the soil to eliminate air pockets.**

4. **Label.**

   The now-empty seed packet, stapled to a small stick, is a long-time labeling favorite, but you can simply write the name of the vegetable (and variety if you're growing more than one of the same kind) as well as the date on a stick with a marker and plunge it in at the head of the row.

5. **Water well with a soft spray so you don't dislodge the seeds**.

   A wand hose attachment is good, as is a watering can with a rose head. If your vegetable garden is big, use a sprinkler.

6. **Mulch.**

   Lay down an inch (2.5 cm) or so of mulch, like compost, after watering over the entire bed; keep the mulch an inch (2.5 cm) away from your new planting so that the seeds don't have to try to get through the barrier. Mulching conserves soil moisture and discourages sprouting weeds.

TIP

To mark your labels, use a paint pen that you can obtain at any hobby or craft store. It won't wear off, fade, or smear. If you want the label to last for the entire growing season, use a plastic or metal label. On the other hand, don't waste your time with a magic marker, which tends to fade, or a No. 2 pencil, which can smear. Stay away from wood labels that usually rot within one growing season.

IN THIS CHAPTER

- Starting to compost your veggie garden
- Adding fertilizer to your veggies
- Supporting vegetable plants
- Controlling and keeping pests away

Chapter 16

Taking Your Veggie Garden to the Next Level

Picture Chapter 15 your Veggie Gardening 101, and this chapter is more like Veggie Gardening 102. If you haven't read Chapter 15, I suggest you read it first before reading this chapter. Here I show you how to build and make the best use of compost (what many gardeners call "black gold" because of its great value to the garden). I give you some tips on how to understand and use all types of fertilizers and how to build and use an inexpensive and indispensable miniature greenhouse. I also discuss controlling pests in a safe and effective way.

Composting Your Vegetable Garden

Perhaps you've been wondering why so many vegetable gardeners have compost piles. The short answer is that it's downright sensible. *Compost* is a bountiful and free source of organic matter, which vegetables adore and consume like crazy.

To have it always handy when you need it is unbeatable. Compost is a pile of organic waste that breaks down into rich, dark, crumbly material that jubilant gardeners call "black gold." It's an excellent way to add humus to your garden, and it also acts as a natural, slow-release fertilizer. You also get to feel virtuous and efficient because you're not sending perfectly useful materials away with the household garbage.

The following sections address how you can make your own compost and what items you can add and shouldn't add to your compost pile. With all the compost you can make, you may become your neighbor gardeners new best friend.

Making your own compost

Store-bought compost, bag for bag, may not strike you as terribly expensive, but it really starts to add up when you're starting or caring for a vegetable garden. You may consider making your own. And hey, it's easy.

Here's the short course on creating compost for your vegetable garden. Just stick to these steps:

1. **Pick a good spot.**

   TIP

   Select a level location out of the way of foot traffic but not far from your vegetable garden. A sunny spot is better than a shady one, because warm sunshine helps the pile warm up, so the contents break down faster. But a shady spot will also do. If you live close to neighbors, be considerate about where you locate your compost pile and keep any food waste well covered with soil, so you don't attract rodents or cause bad smells.

2. **Erect on this spot a cage, square or circular.**

   The cage needs to measure at least 3 by 3 feet to be effective. Commercially available bins of tough black plastic with a lid on top and hatch in the bottom are this size, or you can make your own out of chicken wire, concrete blocks, wooden pallets, lumber, or even piled-up hay bales.

3. **Create a base.**

   Set or scoop in a layer (several inches to a foot thick) of thin branches, chopped-up corn stalks, or something along those lines.

4. **Layer away!**

   REMEMBER

   A proper compost pile, if viewed in cutaway, resembles a layer cake. Each layer should be a few inches thick. Alternate green (grass clippings, young pulled weeds, and kitchen scraps) and brown (ground dried leaves, shredded bark) layers (see Figure 16-1). In other words, organic material that is softer (green) will decompose more quickly. You may consider buying a bale of straw (not hay, which contains weed seeds) and set it next to your compost pile so have a ready supply of organic material to cover fresh additions to the pile.

   Smaller or shredded bits break down faster than big chunks. If you're adding dry stuff, soak the pile with the hose or a watering can right after adding to moisten it. (See the next section for a list of acceptable and unacceptable materials.)

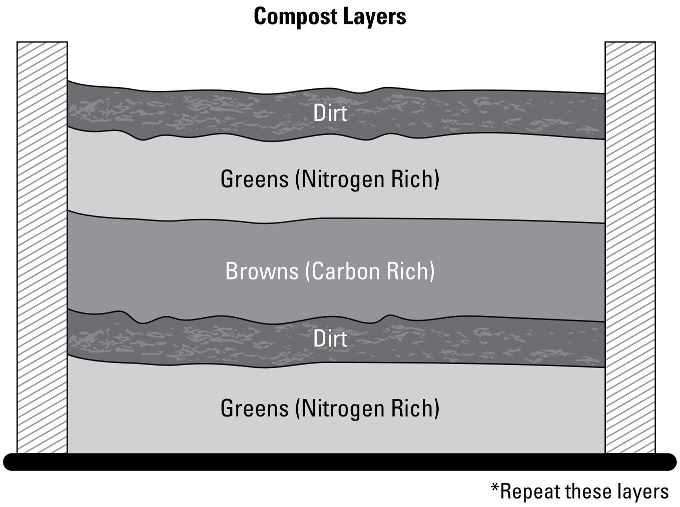

FIGURE 16-1: Layers in a compost pile.

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5. **Check on your pile and turn it every few days or whenever you add more material.**

   A good mix heats up to between 100 and 120 degrees — on warm summer days, you may see the pile steaming. Turn it (with a stick, shovel, or pitchfork, whatever works) to keep it working. Your compost is ready to use when it fails to heat up again after turning. See Chapter 4 for more information.

If you want to take your composting to the next level, check out *Composting For Dummies* by Cathy Cromell and the editors of the National Gardening Association (John Wiley & Sons, Inc.).

Knowing what to include and not include in your compost pile

In terms of not producing noxious smells and attracting rodents, use items in your compost pile that only contain vegetable matter. Use the following:

- Coffee grounds and tea leaves (even tea bags; just remove the staple)
- Crushed eggshells
- Corncobs (chop or grind them up first)
- Vegetable and fruit peelings and leftovers
- Shredded leaves
- Shredded newspaper (just the black-and-white pages)
- Straw (not hay because it contains weed seeds)
- Prunings from your yard (chopped small)
- Lawn clippings as long has the lawn hasn't been treated with weed killers

WARNING

Here's what shouldn't go into a vegetable compost pile:

- Big chunks of yard debris
- Plants that are diseased or full of insect pests
- Weeds that haven't gone to seed — young ones are okay
- Plant debris that's been treated with weed killer or pesticides
- Any meat product (bones, grease, and fat included)
- Fruit pits and seeds (they don't break down well and attract rodents)
- Cat, dog, or other pet waste (which may contain meat products or parasites)

TIP

If your compost pile seems to be breaking down too slowly, you can add these jump-start materials in moderation to boost things a bit: any granular fertilizer, blood meal, bone meal, cottonseed meal, or dried cow, horse, or chicken manure. Pig manure is *not* recommended because it can be a source of parasites.

Fertilizing Your Vegetable Garden

If your vegetable garden has fertile soil enhanced by compost and other organic materials, fertilizing may not be urgently necessary. Still, vegetables are a hungry group, and feeding them can certainly speed growth and improve your harvest.

The main nutrients are nitrogen (N), phosphorus (P) and potassium (K), which is why the labels of general-purpose fertilizers have three numbers. A fertilizer such as 10-10-10 is a *balanced* fertilizer because it contains equal proportions of all three nutrients, whereas a 15-0-0 is obviously nitrogen-heavy. Other elements are necessary for plant growth, but plants need them in much smaller amounts, and they're often already present in the soil (also, many commercial fertilizers include them). Chapter 4 discusses fertilizer in greater detail, including how to read fertilizer labels and how to decide between organic and inorganic ones.

Fertilizer is anything, organic or inorganic, that provides nutrients for growing vegetable plants. (*Soil conditioner*, on the other hand, is material that improves your soil structure.) Just to give you some context, here are different ways to nurture your crops:

- **Side-dressing:** This term means sprinkling some fertilizer beside the plant, rather than on the plant itself. Dry fertilizer can be scratched into the soil with your fingers or an implement such as a trowel or fork. See Figure 16-2.
- **Foliar feeding:** You add foliar fertilizer to water (diluted according to label directions, of course) and then spray it right onto the leaves — plant foliage.
- **Top-dressing:** Top-dressing is when you apply fertilizer over the surface of the garden.

WARNING

All fertilizers are forms of salts, and you probably know what happens if you put salt on plants. It dehydrates them and will eventually kill them if the concentration of salt is too high. The same thing happens when you overdo fertilizer applications.

Liquid fertilizers are concentrated, so you have to dilute them in water according to label directions; you're allowed to do two half-strength doses rather than one full-strength, if you like. Liquid fertilizers are mostly used for foliar feeding although I use them as a quick pick-me-up if the plants just seem to be slowing down. Dry ones, on the other hand, come as powder or granules and need to be watered in.

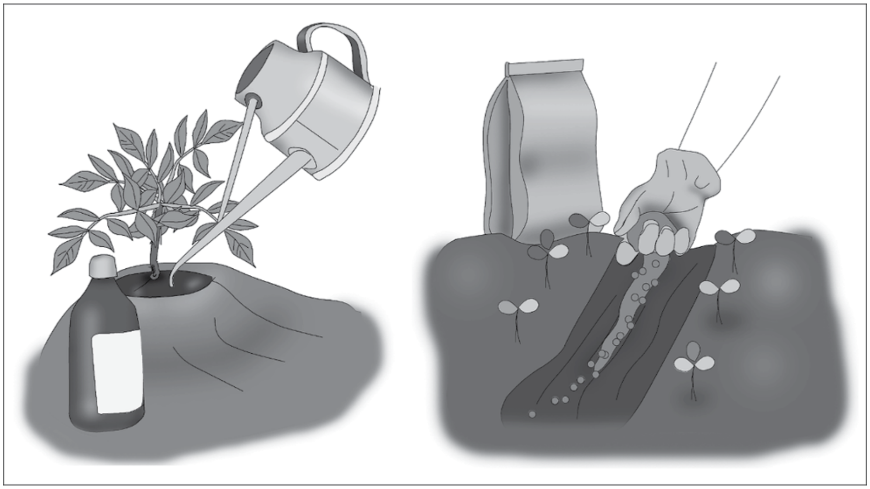

FIGURE 16-2: Side-dressing fertilizers.

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REMEMBER

Dry fertilizer that remains dry never does any plant any good. Dampen the garden before and after watering so the fertilizer can get into the soil and down to the roots, where it's needed.

Using Frames and Supports for Veggies

Oh, those little seedlings — how fast and tall some of them grow! Midway through the summer, they're big; by August, they're out of control. You compromise the health as well as the manageability of certain crops, not to mention their productivity, if you don't step in with some kind of support. And the time to do so is well before the plant becomes unwieldy. (Support is also important if your vegetable garden is out in the open and is occasionally subject to blustery winds.)

The time to get started on support is when a plant is a few inches high. The support is so much easier to position then, plus — and this idea's important — when you plunge a support into the ground near a seedling, you don't harm it or its root system. Procrastinate, and you may.

Your support options include

- **A wooden, metal, or plastic stake:** Plunge this support deep (a foot or more) into the ground near the plant so the support will be stable when it's weighted down with foliage and the rest. Site the stake near the main stem (not right on top of it! — a few inches away) and secure the plant loosely with soft ties as it grows; as the plant fills out, it'll eventually hide these ties from view.

- **A trellis:** Don't use the sort of trellis you train a climbing rose or clematis on but rather something broader and less decorative, something with plentiful horizontal wires or slats for tying onto.
- **A teepee:** A teepee is a good choice for climbing plants that can get rather tall, such as pole beans or miniature pumpkins and squash. You can buy a wooden, plastic, or metal teepee, or rig one out of branches and twigs pruned from your yard.
- **The fence:** A climber or tall-growing veggie can lean on the fence if you site the plant nearby, but you may have to help guide it and anchor it with string and/or the occasional tie.
- **Cage:** Wire cages are sold specifically for supporting tomatoes, but they turn out to be useful for other vegetable crops as well, such as sugar-snap peas, cucumbers, and smaller melons (see Figure 16-3). Get the tallest cages you can, or put one atop another, because many tomatoes easily grow 6 feet or taller, easily toppling shorter cages (refer to Figure 16-4).

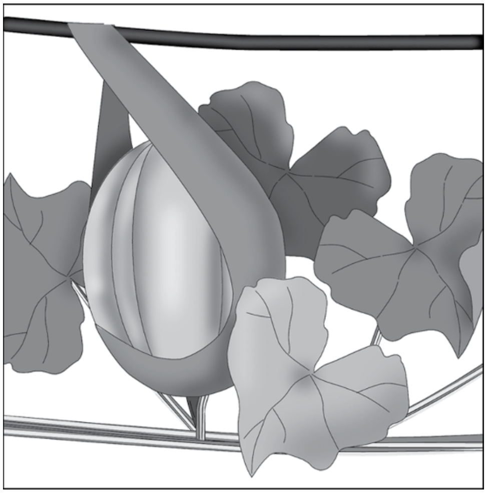

FIGURE 16-3: Supporting melons.

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REMEMBER

Many of the store-bought tomato cages simply aren't up to the job! They're constructed of thin gauge wire that will quickly bend under the weight of heavy tomato vines. Also, their *legs* (vertical wire support stakes) are too small of a diameter of wire to adequately anchor the cage. Furthermore, they're too top heavy and will frequently blow over in the wind. If you're going to use these commercial ones, you may consider attaching with cable ties a few inches of half-inch rebar to the legs or vertical supports of the cage to reinforce them and make them more sturdy.

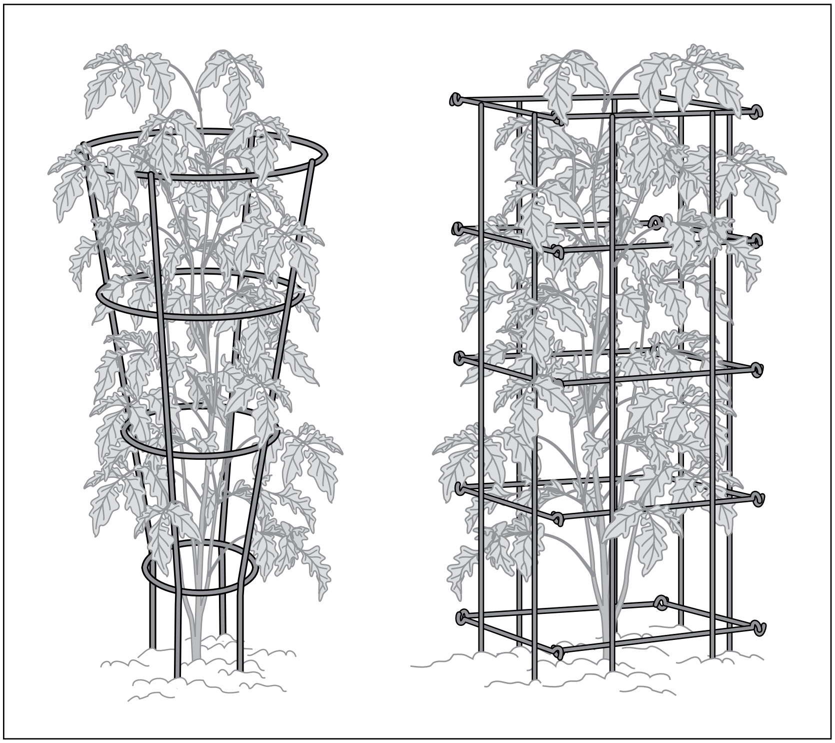

FIGURE 16-4: Two different types of tomato cages.

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If you're going to try them, buy ones constructed with the heaviest gauge wire you can find and consider driving two or so 2 or 3½ inch rebar half-inch in diameter alongside the bottom of the cage and secure these stakes to the cage with zip ties. Or buy a length of hog wire fence, make it into a circle, and create your own tomato cage that will be much sturdier than you'll be able to buy ready-made.

TIP

To secure the veggies to the support, don't use material that abrades or cuts into a plant, such as wire or twist ties; use something soft, like lengths of cloth (rip up old T-shirts or pillow cases) or plastic tape. Also, when you tie, loop one end around the support first, and then pull the tie over to the plant and make a loop there as well — like a figure eight. Do this tying loosely. This way, the plant won't be harmed and can also move a bit, safely, in a breeze.

Vegetables that need or benefit from support include peas, pole beans, tomatoes, cucumbers, small squash and zucchini, mini pumpkins, and melons.

Row covers (Figure 16-5) are usually made of plastic or spun synthetic fabric. They serve as miniature greenhouses. They hold in heat, protect the plants against wind and in some cases shade the plants and reduce the plant's exposure to insects.

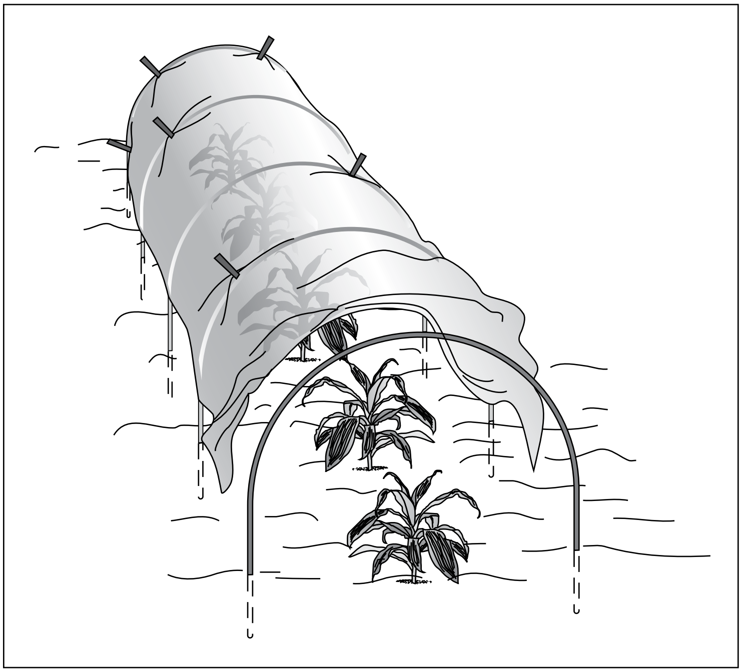

FIGURE 16-5: Row covers.

© John Wiley & Sons, Inc.

Garden dusters can be used to apply a fine coat of powdered insecticide or fungicide to the surfaces of leaves. They're most effective when used early in the morning when there's no breeze and the leaves have dew on them so the dust can better adhere to the plants.

I prefer using a small, 1- to 2-gallon tank sprayer like the one shown in Figure 16-6. Many more pest controls are available in liquid form than dust, and you can control the drift of the applied material by adjusting the nozzle to provide different flow rates. Most are made of plastic, so they don't corrode and are lightweight.

I don't recommend the hose-on type of applicators. The spray they emit is too coarse, and they use way too much of the pesticide.

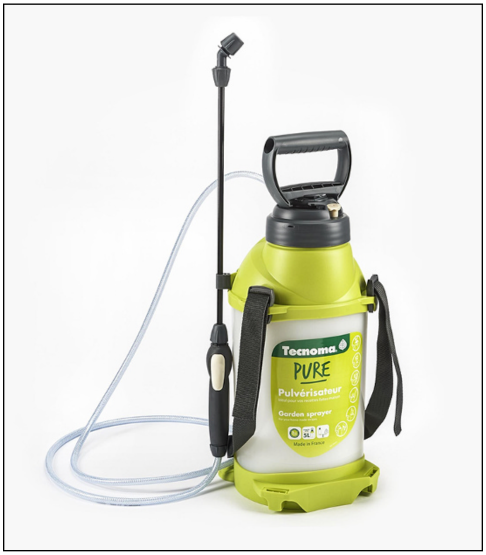

FIGURE 16-6: Garden tank sprayer.

Photo courtesy of Lee Valley Tools

Dealing with Vegetable Pests

If you build it, they will come, sorry to say. Because you're growing edible plants, you should be very reluctant to throw chemical remedies at pest problems in your vegetable garden. Fortunately, you can choose from plenty of proactive, less-risky strategies and deterrents.

Of course, as with so much of gardening, a plot in good health — with good soil, ample fertilizer and water, and elbow room for good air circulation — resists such problems better than an unkempt or crowded one. Also, always

- Select disease-resistant varieties.
- Clean up garden debris promptly.
- Keep after and yank out all weeds, which harbor and feed various pests.
- Rotate crops.

Always make sure you know what or who is attacking a crop — watch at odd hours, such as in the morning or evening, set a trap, or creep in close to the affected plants and look under leaves and in nodes (where leaf stalks meet the stem). Telltale signs also include nibbled leaves and collapsing stems — here again, a little poking around should reveal the culprit. If it's an icky bug, capture a few, stick 'em in a baggie, and show them to someone who can help you identify them.

There is not much that home gardeners can safely do if the vegetables have fungal disease. Prevention is the key. Provide good air circulation between your plants, make sure your soil is well drained, don't stress your plants by not watering them when they need it, and provide them the nutrients they need. Purchase disease-resistant varieties. If you suspect disease, uproot the plant and discard it in the trash, not the compost pile.

In addition, plants face dangers from other varmints. Here are the most common creatures you'll face.

Rodents, rabbits, and other miscreants

Mice, shrews, squirrels, moles, voles, gophers, and other little rodents often burrow in mulch, either to nest or to root around for seeds to eat. Replace the mulch with gravel. Or reduce it, or at least scrape it away from the bases of your plants. A cage or barrier of ¼ to ½ inch hardware cloth under or around the perimeter of the garden can also discourage the rodents, provided the holes are too small for them to squeeze through. You can also try trapping them or flooding their holes/tunnels with the hose. A cat who's a good mouser is the best bet.

Rabbits, woodchucks, raccoons? These brazen marauders may make you homicidal enough to reach for a gun, hand grenade, or poison-baited trap, but you can choose from some less drastic (and more humane) tacks. The best defense, quite honestly, is a good garden fence (include a gate, of course, so *you* can get in and out). Select one that's tall enough to discourage climbing over, but also sink it several inches into the ground to discourage digging under. Other remedies that are said to work include hot sauce, commercial repellents, bags of human hair (collected from a salon), a noisy radio, water-gun repellents, and leaving an alert dog nearby.

Check out Chapter 8 to see how to make a hardware cloth cage can save the day against bulb-eating varmints.

WARNING

Some municipalities don't allow trapping of any kind of some of these creatures, so check your local ordinances before you act.

Deer

First of all, let me be completely frank here: Gardening in deer country is a challenge, and modern-day deer are overpopulated because of fewer natural predators and because their natural habitats are shrinking due to development. And when they're hungry, they'll eat almost anything, including the contents of your vegetable garden.

TIP

The best defense is a good garden fence. But because deer are good leapers, it needs to be quite tall — 8 feet or so. A lower fence may work if you set it at a 45-degree angle or even lay it on the ground on the theory that deer don't like to get their hooves snagged. For extra insurance or if the deer are really hungry and persistent, you need an electric fence (hardware, home, and farm-supply stores sell this) or a double fence — two 10-foot fences, 6 feet apart. A large dog also helps to keep them at bay!

Dealing with deer that aren't welcomed guests in the garden is a frequent problem and "solutions" abound that seem to work to some degree. You can find various repellents, including coyote urine, ultrasonic alarms, and devices that detect the movement of these critters and greet them with a shot of a stream of directed water. Some gardeners believers that hanging bars of soap will discourage deer.

Birds

Birds are mainly a threat to newly planted seeds and ripening fruit (especially berries — see Chapter 18). Cover the seeds with soil and/or netting to discourage them; cover plants with netting until the fruit is ripe and you're able to pick the harvest.

Bugs

Correct identification is key. Capture a few and show them to someone who knows (a garden-center staffer, a landscaper, or another, more experienced vegetable gardener) or look the bugs up. If you can't find the pest, a sample of typical damage should help your expert identify the culprit.

As you can see in Table 16-1, I'm not hastening to recommend spraying chemicals in a vegetable garden. Try other tactics first. Table 16-1 lists the common culprits.

If you catch the problem early, it's not unrealistic to manage by picking off offending bugs and drowning them in soapy water (not a coffee-can of gasoline — this method makes a disgusting and toxic brew that's hard to dispose of) or putting the bugs in a zipper-type plastic bag. Or shower the plants with water. Often a good spray with the hose can drown and knock off offending pests.

Spray with pesticides only as a last resort because you can harm unintended targets (plant and animal) or taint your garden soil. To be on the cautious side, you also want to thoroughly wash your harvest before eating or cooking. Always get the right product for the targeted pest and follow the directions on the label to the letter. Note that most sprays are most effective when used in the early stages of a pest's development. Examples of sprays that you can use include insecticidal soap, neem oil, horticultural oils, and garlic or pepper spray.

TABLE 16-1 Vegetarian Bugs, Grubs, Slugs, and Other Critters

Type	Description	Favorite Targets	First Control
Aphids	These tiny plant-sucking insects are usually green but may be red, brown, gray, or black. They stunt and distort plant growth and spread disease.	Broccoli, cauliflower, kale, cabbage, and Brussels sprouts	Knock them off with a stiff blast from the hose.
Beetles	Identification is important because some beetles are perfectly harmless. The main vegetable-garden villains are cucumber beetles, Colorado potato beetles, and little flea beetles.	Cucumbers, squash, pumpkins, melons, and potatoes (aboveground growth)	Hand-pick them off or use row covers or other physical barriers to keep them away from their favorite plants.
"Worms" (moth larvae)	Cabbage loopers and corn earworms are the worst vegetable-garden pests.	The part you like — the fruit of cabbage-family crops, corn ears, and ripening tomatoes	Protect your plants with row covers. Also, because the worms can overwinter in garden soil, turn over the soil in late fall to expose them to freezing temperatures — and rotate your crops.
Caterpillars	Not all caterpillars are harmful, so be careful when identifying. Some are large, some are small, some are colorful, and some are spiny or hairy.	The leaves of any vegetable plant	Hand-pick them off.
Cutworms	These little larval fellows relish young seedlings, which they neatly chop off at the soil line.	Beans, corn, pepper, tomato, and cabbage	Because they don't like to climb, a collar around the vulnerable plant should keep them out (make it from a can or stiff cardboard).
Leafhoppers	These very small flying pests pierce and suck the life out of plant parts, especially foliage (though they love bean blossoms).	Beans, lettuce, potatoes, tomatoes, and squash	A collar of aluminum foil around the base of a plant can deter them.
Leaf miners	These tiny insect larvae travel within leaf tissue, leaving meandering trails. These paths weaken a plant and consequently reduces its harvest.	Cucumbers, peppers, squash, melons, and tomatoes	Pick off and dispose of affected leaves.
Root maggots	These critters are most active in spring as little egg-laying flies.	Cabbage, broccoli, cauliflower, Brussels sprouts, kale, radish, and onion	Sprinkle coffee grounds or fireplace (wood) ashes around vulnerable plants. Fine-mesh screen cages may also deter them.

(continued)

TABLE 16-1 ***(continued)***

Type	Description	Favorite Targets	First Control
Snails and slugs	Crowded, damp conditions prove irresistible to these slimy nibblers. They're most active at night.	Any vegetable plant!	Erect copper barriers around vulnerable plants (these give them an unpleasant "electric shock"); trap them with pie tins of beer; spread diatomaceous earth on the ground (it feels like flour but is full of sharp particles that irritate their skin). Cocoa hull mulch deters them, and some bark or wood mulches have pieces that are large enough for these slimy critters to sleep under during the day. Put out a single board in the garden and the snails and slugs will use it for shelter during the day. Lift it up and them scrape off. Baits that contain iron aren't toxic and pretty effective.

SHOW THE GOOD BUGS THAT YOU CARE AND APPRECIATE THEM

Not all bugs are bad; in fact, many are helpful as pollinators such as various bees and butterflies, and some are predators, like ladybugs and lacewings, that munch on soft-bodied insects including aphids. The challenge is to help the good bugs and still control the ones that are causing garden damage. Some companies sell some of the beneficial predatory insects that you can release into your garden. That may sound good, but unfortunately it's rarely effective because when they're released from their shipping container, most of them fly off.

The more realistic approach is to be careful about pesticide choice and application. Make sure you really need to use a pesticide before you apply it. Hand pick larger bugs and accept the fact that your plants don't have to be absolutely perfect and that some insect damage is okay. Use low toxicity materials like insecticidal soaps. Stay away from pesticides that are toxic to honeybees (this information is usually on the label of the pesticide or you can find it online). To attract butterflies, you can plant a stand of milkweed somewhere in your garden.

The time of day that you apply pesticides makes a big difference. Spraying in the evening when pollinators aren't active is always a good idea.

IN THIS CHAPTER

- » Growing and cultivating herbs
- » Choosing some choice culinary herbs
- » Bringing in the harvest

Chapter 17

Adding Flavor to Your Garden with Herbs

If you suspect that the definition of *herb* is a bit loose — it includes rosemary but also nasturtiums — you're right. Defining an *herb* is easier said than done, but the important thing to keep in mind is that herbs are plants that not only have ornamental merits but are also useful in some way. Just to complicate things, some plants called herbs are fast-growing annuals (see Chapter 6), and others are long-lived perennials (refer to Chapter 7).

Gardeners grow many herbs for their foliage, which is often deliciously scented; people value others for their edible flowers, seeds, or roots. A lot of herbs are a boon in the kitchen, adding exciting new dimensions to all sorts of recipes. Still others are reputed to have healthful or healing properties. The uses of the various herbs are too many and too detailed for the scope of this book, so please pick up *Herb Gardening For Dummies* Karan Davis Cutler, Kathleen Fisher, and Suzanne DeJohn and *Herbal Remedies For Dummies* by Christopher Hobbs (both by John Wiley & Sons, Inc.) if you want more information about these fascinating plants.

Even with that broad definition, many herbs have common growing conditions and harvesting techniques. And here's some good news: Herbs are among the easiest and most rewarding of all plants to raise. This chapter fills you in on how to grow and care for herbs.

Recognizing Common Culinary Herbs You Can Grow

Herbs are usually very easy to find — look for them where you buy your annuals and perennials; or perhaps you have some friends, relatives, or neighbors who won't mind giving you some of their extra plants or cuttings and planting them in your own. Some of the more common herbs you can grow in your garden that you can then use in your kitchen are as follows (check out Figure 17-1 for images of some of them):

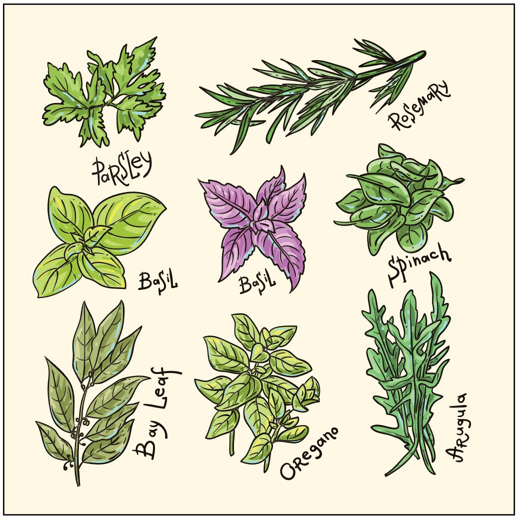

FIGURE 17-1: Most common cooking herbs.

Shutterstock

Planting Herbs: A Lesson in Adaptation

When you're planting your herbs, there are no hard or fast rules! Herbs are wonderfully versatile and flexible, and herbs come in a huge variety of annual and perennial types of plants.

The main thing to do is to pay attention to the type of herb you're trying to plant: Is it an annual? A perennial? Fast growing? Slow growing? Is it an invasive plant, like mint, or does it get along well with other plants? These considerations are important before you start adding herbs to your garden — and probably even before you acquire the herbs themselves! Do you research beforehand: Ask your gardening friends or the staff at the local nursery, or consult *Herb Gardening For Dummies*, to find out more about the growing habits of certain herbs.

The following gives you some pointers on growing herbs successfully. They are really no more difficult or demanding than any other plants in your garden although many do come from the Mediterranean which means most love full sun and very well drained soils.

Getting the timing right

When you plant your herbs really depends on the plant, but you can't go wrong planting herbs the same way you plant vegetable seedlings; that is, plant them in the garden after all danger of frost is past (see Chapter 16 for info on vegetable gardening). The reason this strategy works for most herbs is that a lot of them aren't especially cold-tolerant. This technique also gets them in the ground under encouraging conditions: warm soil, warm air, and a good summer stretching out ahead of them. They should surge right into robust growth.

Obviously, if your climate is fairly mild (as in the South and Southwest, the Gulf Coast, and most of California), you can plant herbs earlier in the year than, say, someone in colder climates with later frost and freeze safe dates in the spring like New England, Canada, or the upper Midwest than it is better off waiting until Memorial Day or so.

TIP

Avoid planting herbs — even if you spot plants for sale somewhere at a bargain price — in the heat of summer. Planting then stresses out even dryland natives like oregano and lavender. Also, obviously, if a cold winter is coming on, now is not the time to put out herbs. If you want to enjoy some herbs during the winter months, you're better off growing them in pots that you bring indoors to a sunny windowsill. See Chapter 19 for details on container gardening or check out the section, "Potting your herbs," later in this chapter.

Helping herbs find their place in the world

When you're deciding where to plant your herbs, just remember that most herbs like plentiful sunshine and appreciate well-draining ground (as opposed to very dry or very soggy sites). Read on for your placement options.

Inviting herbs into your current garden

If you're considering planting your herbs in an already-existing garden, here are two options:

- **Herbs growing by vegetables:** Adding edible herbs to your vegetable garden is a good idea. They like the same growing conditions of fertile soil and full sun, and when you're in the mood for a spontaneous summer meal, everything you need is right at hand. Some of my favorite choices include basil, dill, parsley, cilantro, fennel, thyme, sage, and chives. Check out Chapters 15 and 16 for info on vegetable gardening.

- **Herbs mingling with flowers:** This type of planting works best for herbs with pretty flowers of their own, as well as ones that can contribute attractive foliage. Imagine not just how pretty the flower bed will be but also the intriguing homegrown bouquets you can assemble if you widen your palette to include some herbs. Favorite choices include sage (including the kinds with colorful leaves), dill, mint, basil (especially the purple-leaved kind), artemisia, and borage. For info on growing annuals, flip to Chapter 6; Chapter 7 discusses perennials.

Creating an herb garden

For many gardeners, the best solution for growing herbs is just to put them all in their own garden. Follow the usual rule for flower gardens; namely, place taller herbs to the back or in the middle of a bed, with shorter ones at their feet, so you can see, appreciate, and access everything for care and harvesting. Allow every plant ample room to spread — if some herbs emerge as thugs over time, stealing the stage from less aggressive growers, just chop them back or take them out of the display altogether (see the nearby sidebar).

You can choose from many types of herb gardens, but generally herb gardens are either formal or informal. You'd do wise to plan a formal garden ahead on paper, making a geometric design (composed of squares? Composed to look like slices of a pie?) to your liking — look at Figure 17-2, or flip to Chapter 2 for advice on designing a garden. Install the layout first, with edgings and pathways in place; use bricks, rocks, gravel, or even grass. Edging plants such as small boxwood plants, germander, or a sheared low hedge of lavender or dusty miller also work but require more care.

If you prefer informal herb gardens, take note: A casual bed devoted to all herbs can look delightfully cottage-gardeny, or it can look like a jumble. (A jumble is bad: It's hard to care for and harvest from, and crowded plants become more vulnerable to pests and diseases.) So make a plan on paper for this sort, too — set it up like your vegetable garden or your favorite flower garden — and then see what happens, making alterations as you see fit. Aim for a harmonious mix of foliage colors and types, with the occasional exclamation point of a flowering herb.

Potting your herbs

A lot of people like to grow herbs in pots, which contains their growth and makes them handy for cooking. Container gardening is also a terrific way to raise edible herbs that you use often in your kitchen.

GOING SOLO

Some herbs are meant to be alone. These plants are tall or hog horizontal space. They also monopolize resources of soil nutrients and water or have a tendency to grow rampantly. In other words, they're not good team players. If you really want them, why not just segregate them in their own area, bed, or pot? To ensure that they don't spread where they aren't welcome place the pot on top of the soil. Plants that do better solo include mint, oregano, and marjoram.

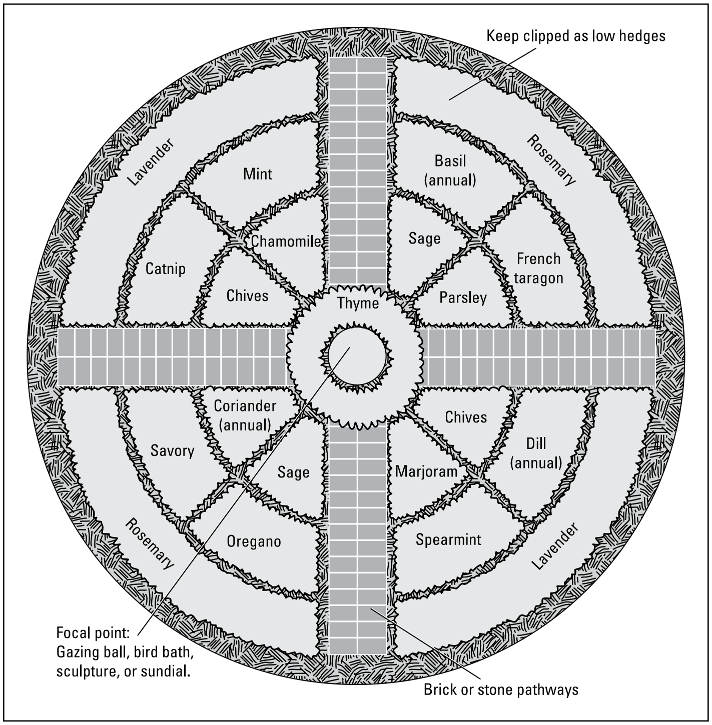
Keep clipped as low hedges
Lavender
Mint
Basil (annual)
Rosemary
Chamomile
Sage
Catnip
French taragon
Chives
Thyme
Parsley
Coriander (annual)
Chives
Savory
Dill (annual)
Sage
Marjoram
Rosemary
Oregano
Spearmint
Lavender
Focal point: Gazing ball, bird bath, sculpture, or sundial.
Brick or stone pathways

FIGURE 17-2: A formal herb garden plan.

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The most important thing to do for potted herbs is keep them watered; potted plants dry out notoriously fast, and cycles of soaking and drying out aren't good for a plant's health, even a tough little herb plant. (***Note:*** The Mediterranean herbs — such as thyme, rosemary, lavender, sage, and oregano — prefer poor, almost sandy soil; they'll rot if too wet. Use a sand or pebble mulch around them.) So site potted herbs where you won't forget about them, such as right outside the back door or on the patio in full sight of the kitchen window. The herb combinations possible in pots are endless. Check out Chapter 19 for more information on container gardening.

WARNING

Some herbs, such as mints, lemon balm, and lemon verbena, can become garden thugs. They're very invasive, so containers are perfect for keeping them where you want them and preventing their wandering and taking over. (Check for square stems on plants — these traits can indicate that you're dealing with thugs.)

Mixed displays can look great. Fill larger pots with several different herbs or assemble a gathering of individual pots and array them on a deck or patio. You can even tuck a potted herb into your garden proper as an accent, shifting it around as you see fit. If color or interest seems to be lacking, just choose especially decorative or colorful pots — they make a dramatic difference and add to the fun.

REMEMBER

Frequent harvesting from potted herbs has an important benefit, by the way. When you snip off the tips, the remaining plant is inspired to grow more thickly and compactly — which looks better in a pot. Also, you don't want them to flower and go to seed because then their growth subsides, and their flavor may change.

Putting herbs in their place: How to plant

Planting herbs is as easy as 1-2-3 and really isn't much different from planting an annual or perennial. When planting a new herb in a garden, just follow these basic steps (if you need tips on preparing the garden beforehand, see Chapter 4):

1. **Using a trowel, dig a hole in a sunny spot with well-drained soil.**

   The hole should be slightly deeper and wider than the pot the herb is currently in. Add a little compost or other organic material to the bottom of the hole for the roots to grow into, and scrape the sides of the hole to loosen them, which encourages the herb's root system to grow beyond its current size.

2. **Pop the plant out of its pot.**

   TIP

   Try not to tug the plant from its growing container. Instead push from the bottom of the container to force it out. If the plant is really rootbound and stuck in the growing container, you can cut the container to free the plant. Using your fingers, gently tease the roots on the bottom loose and loosen some on the sides as well.

3. **Plant the herb at the same depth it was growing in the pot (if you're not sure, look closely on the stem for a soil line).**

   Backfill soil in and around the hole, and firm everything into place with your hands to eliminate air pockets. Soak thoroughly.

REMEMBER

When choosing a planting spot, be sure to find out and take into account your herb's expected mature size. You don't want it to be crowded or cramped; it won't be as healthy or productive.

Planting herbs in a container is a bit different from planting in a garden. Follow these steps (and refer to Figure 17-3):

1. **Choose an ample-sized pot and be sure it has a drainage hole in the bottom.**

   Most herbs can't tolerate wet feet.

2. **Fill the pot with damp potting soil mix.**

   Pre-moistening the mix makes the job soooo much easier!

3. **Eject the herb seedling from the pot you bought it in, place it in, and water it.**

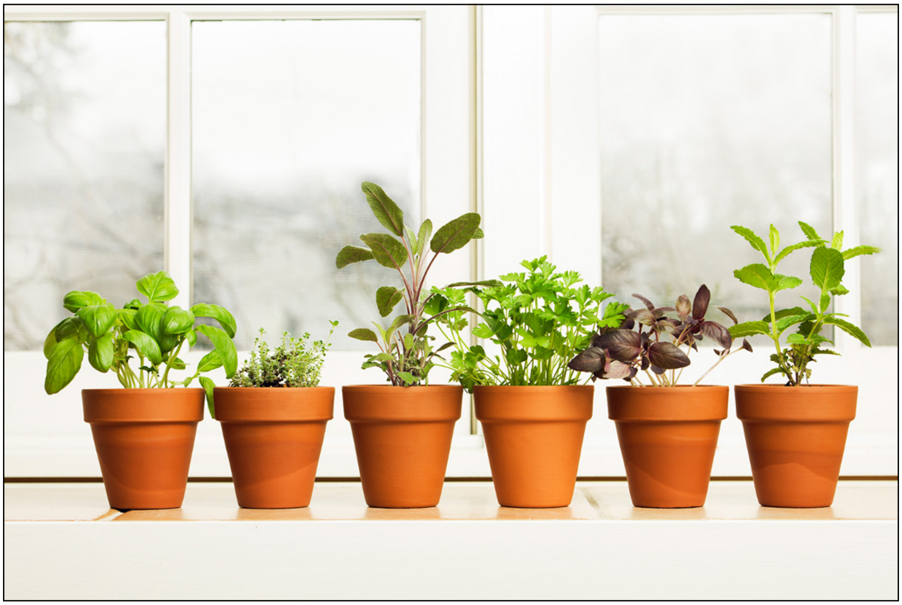

FIGURE 17-3: Various herb combinations in pots.

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REMEMBER

Containers, particularly clay pots, tend to dry out quickly, especially when placed in the sunny spots that herbs like. Although many herbs are tough customers and drought-tolerant, subjecting them to extreme cycles of drought and drenching causes stress. Don't neglect your potted herbs! Place them in plain sight or in an area you pass by often so you don't forget them.

Raising herbs from seed

The majority of herbs are easy to grow from seed. Also, some types of herbs — interesting or offbeat or rare varieties — are often for sale only in seed form.

Here's the good news: Unlike some flower and vegetable seeds, you don't have a long wait from sowing to productive plant.

To plant your herb seeds, follow these steps:

1. **Prepare a flat of sterile soil mix or the pot in which you plan to keep the herb(s).**

   Be sure the flat or pot contains drainage holes to prevent the possibility of rot.

2. **Sow the seeds on top of the mix or under a thin layer of mix, whichever the seed packet recommends.**

   The packet should also advise you on how far apart to sow.

3. **Care for the seeds for a few weeks or until the seedlings are several inches high and ready to be transplanted.**

   REMEMBER

   Bottom watering is advisable, as is warm and indirect light — again, the necessary details will be on the seed packet. Place the container in a tub or sink in which it will be watered. Gradually add warm water (this will penetrate the soil quicker than cold water) so that it reaches a depth of about half the height of the container in which the seeds are sown. Let the container sit in this warm water until the surface of the soil in the container is wet (it will be a darker color). This may take an hour or so. Then either remove the seed container from the tub or let the water out of the sink and allow the excess water to drain from the container.

TIP

Many herb seeds are quite small, and seed companies give you much more than you need in a single packet (for example, a typical packet of basil seeds can have 250 individual seeds in it!). Don't use them all at once.

TIP

The biggest mistake beginning herb gardeners make when sowing seeds is sowing too thickly. The result is a forest of small plants! Be conservative when sowing, and even so, you may still have to thin. (Wait till the seedlings have at least a second set of leaves before thinning; then carefully, carefully cut out the weaker plants with tiny scissors.)

Taking Care of Your Herbs

Caring for herbs isn't much different from watching out for your other annuals and perennials, but herbs may have a few special requests. The following sections tell you how to make sure your herbs have to what they need to succeed, including protection from the baddies of the insect (and mite, snail, and slug) world.

Providing an herb’s basic needs

Although each type of herb has its own growing requirements, it’s pretty safe to say that most herbs are unfussy plants. Most prefer full sun. Most prosper in good, moderately fertile soil. And most require that the soil be well-drained so they get the moisture they need to grow but don’t suffer from wet feet. If your chosen site is lacking in any of these requirements, take steps to improve it. Clip back overhanging trees and shrubs. Add organic matter such as compost and/or dampened peat moss, as well as some sand to poor soil to improve its texture. (See Chapter 4 for more information.)

WARNING

Go easy on fertilizing your herbs. Too much fertilizer may lead to lax, floppy growth that’s unattractive and vulnerable to diseases and pests; it may also inhibit flowering.

Although some herbs may be naturally found in more alkaline soils, I’ve found I can grow pretty much all of them in any good garden soil. Luckily, they really aren’t that picky about the soil pH.

CARING FOR POTTED HERBS INDOORS

Herbs are easy and fun to grow inside, which may also extend the harvest for you if you have cold winters. They’re best on a kitchen windowsill, provided it gets plenty of sun. Sufficient light will likely be the moist challenging thing to provide your herbs during the winter. A large window with southern exposure is best. You can also grow them under bright fluorescent lights. See Chapter 10 for more detail about growing herbs from seeds.

Here are couple other tips:

- **Turn herbs occasionally so they’re healthier and look fuller/balanced.** Potted herb plants naturally grow toward the source of sunlight, and they may start to lean or look one-sided unless you give them a quarter-turn every few days.
- **Trim or harvest often.** Life in a pot is pretty confining for most herbs, and you don’t want them to outgrow their space or start getting floppy or lanky. So cut off tips often; this trimming inspires the plant to branch and go grow more densely and compactly.

After a while, the herbs may naturally peter out and need to be replaced. So enjoy them to the fullest while they’re in their prime!

REMEMBER

Make sure you water in your herb plants on planting day. Then water the plants often in the following days and weeks until they become well-established. Well-established herbs may be fairly drought-tolerant, but that doesn't excuse you from getting them off to a good start while they're young.

Some herbs prefer moist ground. The drawback is that if you put them in such a spot, they may grow too rampantly; be willing to let them do as they will. If that's not practical, simply raise them in a pot and keep the pot well-watered and/or set in a saucer of water so the growing mix is perpetually damp. Examples of herbs like this include mints, beebalm, cardamom, chervil, goldenseal, and sorrel.

Dealing with herb pests

Believe it or not, many herbs are pest-free, which is one of the many reasons gardeners find these plants so easy and fun to grow. Some herbs even *repel* pests from themselves as well as adjacent plants. The scents emitted by the foliage of some of the herbs that people often find pleasant are repugnant to some bugs. However, you may meet a handful of pests. If you do, act quickly to rescue your harvest, either by treating the plant or by tearing it out and getting rid of it before the problem can spread. Check out Table 17-1 for a rap sheet of the major troublemakers.

REMEMBER

The pests that go after herbs may seem as varied as the herbs themselves, but here are a few defensive strategies you can take to protect your herbs:

- Make sure your herbs are in good health, well-watered, and in particular have sufficient elbow room.
- Remove affected leaves; pull out severely infested plants and throw them away before the problem spreads.
- Dislodge small infestations with a spray from the hose; larger insect pets may be hand-picked and destroyed.
- If you have to spray, try insecticidal soap, which is nontoxic. Make sure the pest you're targeting is listed on the label, and then carefully follow the directions regarding how and when to apply.
- Get a little help from some friends. Some herbs may help each other out by keeping pests at bay.

REMEMBER

If you succeed in beating back a pest and later want to use the herb for fresh eating or to cook it, be sure to wash it thoroughly first.

TABLE 17-1 Pests and the Herbs They Dine On

Pest	Appearance	Effect on Plant	Food Preference
Aphids	Tiny sucking insects that congregate in groups; they may be white, greenish, or black	A severely infested plant turns yellow and dies.	Caraway, lovage, nasturtium, and oregano
Carrot weevil	A tiny, hard-shelled brownish bug	Carrot weevils attacks the root as well as the top of the plant.	Parsley
Japanese beetle	Green and copper colored bugs that are about ½" long	These bugs are voracious foliage eaters.	Basil and echinacea
Leaf miner	A bug that starts as a tiny yellowish larvae and turns into small, black fly with yellow stripes	Affected leaves have meandering tunnels and blotches.	Lovage, oregano, and sorrel
Scale	Bugs that look like small waxy or cottony bumps	Scales feed by sucking sap, and they leave behind telltale honeydew (which, in turn, attracts ants and sooty mold).	Bay, myrtle, and rosemary
Slugs and snails	You know these slimy characters! But you may not always see them — they're most active at night	Slugs and snails devour foliage.	Basil, calendula, and sorrel
Spider mite	A wee relative of the spider	Spider mites suck plant juices, leaving telltale pinprick spots and puckering.	Angelica, germander, lemon verbena, mint, oregano, rosemary, sage, and thyme

REMEMBER

Some insects are beneficial to your garden, and certain herbs attract them. Lady bugs are always welcome in the garden because they're voracious eaters of pesky aphids. They're attracted by the foliage of calendula, chives, and caraway, and they're also tempted by seeds of tansy, dill, and yarrow. The flowers of mints, thyme, lavender, beebalm, and rosemary entice a range of pollinators, ranging from bumble bees and honeybees to butterfliers and hummingbirds.

IN THIS CHAPTER

- **Deciding what kind of fruit to grow**
- **Purchasing fruit-producing plants**
- **Planting fruitful trees, shrubs, berry patches, and vines**
- **Providing care**

Chapter 18

Sweet and Crunchy: Growing Fruits, Berries, and Nuts

Homegrown fruit, berries, and nuts take more time and care than some other kinds of gardening. Although soft fruits like strawberries, grapes, and raspberries yield delicious results within few months or less, tree fruits and nuts require more patience and can take several years to be productive. Fruits and nuts also require a different sort of preparation than trees and bushes that don't bear them. But at harvest time, the work is all worth it! In almost every region of North America, you can find a type of fruit or nut that's well-adapted and fairly easy to grow.

Note: Many gardeners collectively group fruits, berries and nuts together as a topic because the cultivating methods are similar for all of them. So for the sake of making the descriptions in this chapters simple, when I mention fruit, please keep in mind that I mean fruit, berries, and nuts unless I say otherwise. Also, all of the fruit-bearing plants in this chapter, except strawberries, are woody. Strawberries die back to the ground with only their crowns and roots that overwinter so in that way they are much like most herbaceous perennials. All the fruits in this chapter are "perennial" in that they come up every year and are winter hardy.

For now, though, let your imagination savor the aroma of sun-warmed fruit, picked fresh in your own yard. Then read on as I help you make that vision a reality.

TIP

When is a "veggie" a fruit? I guess this is a bit of garden trivia, but a "fruit" is defined as a ripened ovary. You can think of it as "pregnant flower." Using this definition, many plants that are known as veggies, like melons, cucumbers, tomatoes, and peppers, are literally fruits — even though they are technically fruits they are considered veggies by gardeners.

Choosing the Fruits for Your Garden

Realistically choosing the type of fruit you can support and grow is important, making the difference between easy success and frustration or failure. Before you get your heart set on a certain kind of fruit you want to grow, do a little research.

Now, you know that fruits come later in a plant's seasonal cycle, right? First the flowers bloom, and then the petals fall as the fruit starts to swell (pollination from the same or an adjacent plant may be necessary — bees often help out). At first small, hard, and green, a fruit expands in size and changes color on the way to becoming juicy and ripe. The seeds or pits are nestled within (except for in the odd case of strawberries), and the flesh of the fruit is actually meant to protect and nourish the seeds, which is why small plants may eventually sprout and grow where unharvested ripe fruit falls to the ground.

Why not just produce seeds? Why go to all this effort? The probable answer is that fruit-producing plants adapted themselves so that birds and animals would eat them and therefore distribute the seed far and wide. Back in the mists of history, food gatherers discovered that the flesh of fruit could also nourish people. The art and science of cultivation led to better fruit size, quality, and flavor. Modern-day fruit varieties are much improved over their wild forbears but require care to achieve a good harvest.

Examining the types of fruits

Not all types of fruit are suitable or easy for home gardens, owing to their size or growth and maintenance requirements. Date palms, for instance, or pineapple, are tough to grow. However, home gardeners do have a wide range of choices available. Here are some examples:

- **Tree fruits:** Apple, apricot, banana, cherry, crabapple, pear, peach, nectarine, plum, avocado, jujube, loquat, kumquat, juneberry, medlar, persimmon, pawpaw, pineapple guava, pomegranate, quince, and fig. Also, citrus fruits like orange, lemon, Meyer lemon, lime, calamondin, grapefruit.

  REMEMBER

  All nuts are technically "seeded fruits," including peanuts!
- **Vine fruits:** Grape and kiwifruit
- **Shrub fruits:** Blackberry, goji berry, seaberry, quince, raspberry, gooseberry, elderberry, currant, and blueberry
- **Ground-covering fruits:** Strawberry and melon (for info on growing melons, see Chapter 15, on vegetable gardening)

WARNING

Fruits that belong to the genus *Ribes*, which includes gooseberries and currants, aren't allowed to be grown in New Hampshire, West Virginia, or North Carolina. Some other states require permits because these fruits were implicated to be carriers of a disease, blister rust, which can be damaging to pine trees and can therefore have an impact on the timber industry. To make sure you can grow them, check with your Cooperative Extension Service.

Another thing you might want to consider when looking at types of fruit is how long you must wait before getting a yield. For instance, ground-covering fruits like melons are annuals, at least in a climate that has frost, whereas strawberries are perennials, but both produce fruit the first year — although with strawberries, many gardeners prefer to snip off the flowers the first year to make the plants stronger to bear a more sizable crop the next year.

Most shrub fruits take two or three years to yield substantial harvest. Fruit trees take a few to several years to bear, depending on variety and type of *rootstock* (the base and root portion of a plant) they're on. Dwarf fruit trees tend to bear sooner, within three years, whereas trees on standard rootstocks can take four or more years.

Most woody fruits can last many years. Some apple orchards and vineyards are generations old. In general, when fruits start losing their productivity, it's time to replace them with newer stock. A tree also can be rejuvenated by careful pruning and grafting newer varieties onto the older tree.

Getting the lowdown on chill factors

You can find many named cultivars (cultivated varieties) within each type of fruit, and you need to choose one suitable to your climate and growing conditions. Some fruit plants are obviously better-adapted to certain climates than others.

Avocados don't work as a crop in cold regions; some pears and raspberries are better in mild areas, and others are adapted to Northern climes; most apples (but not all) like to be cold and North, too. Although you may be able to push your boundaries or cheat a bit in your garden with smaller plants such as perennials, coddling a more substantial resident such as big bush, vine, or tree isn't always practical. (Check out Chapter 3 for info on growing seasons and plant hardiness zones.) Climate change is making it possible to grow some fruits farther north than was possible before. Unfortunately, the flip side is true too where fruits that required cooler winter and summer temperatures now aren't able to grow where they once thrived.

Take your cue from what sorts of fruits appear to be prospering in your area or what's for sale at your local nursery. Contact your nearest Cooperative Extension Service office and get recommendations not only for the types of fruits but also for the most suitable and cold-hardiest cultivars within each kind. In the meantime, here's what you need to know about high-chill and low-chill fruits:

- **High-chill:** High-chill trees require more hours with temperatures below 44°F (7°C) to break dormancy and grow in the spring. High-chill trees don't perform well in mild climates. Many apples, pears, cherries, and deciduous fruit and nut trees are rated by the number of hours of chill they require. If you're in an area that is notorious for late frosts, these varieties can sometime make a difference whether you get a crop or not.
- **Low-chill:** Low-chill deciduous fruit trees require fewer hours of with temperatures below 44°F (7°C) to break dormancy. These types of deciduous fruits and nuts do best where winters are mild.

Review Table 18-1 for further details on popular trees. ***Note:*** *Chill hours* means the total cold-season hours below 44°F (7°C).

Studying your size accommodations

Adding fruit plants of some kind to your home landscape isn't just about harvesting delicious fruit. The size of the plant is important, as is the relative beauty of its flowers and foliage. Ideally, the plant fits in and enhances the attractiveness of your yard even when it's not producing fruit.

Pick a plant that fits into its allotted space in your home landscape. Be realistic, because fruit-bearing plants already require consistent maintenance without you also having to constantly cut them back in an effort to get them to fit in a too-small area.

TABLE 18-1 Chill Requirements of Fruit and Nut Plants

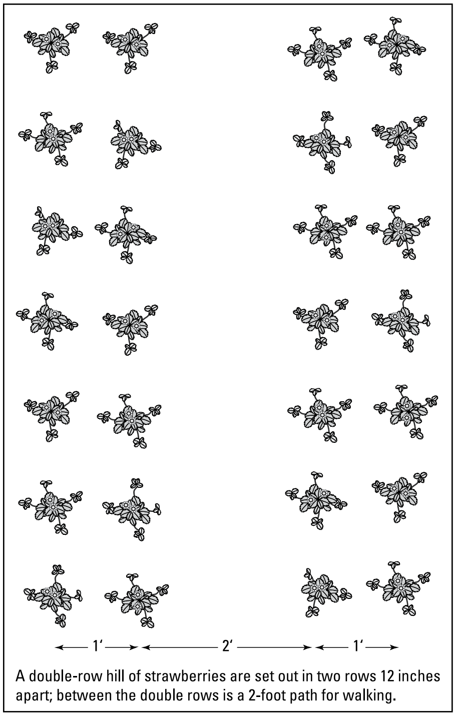
Fruit	Chill Hours	Fruit	Chill Hours
Almond	400–700	Japanese plum*	500–1,600
Apple*	400–1,800	Kiwi*	400–800
Apricot*	350–1,000	Kiwi 'Tomari'	0–200
Asian pear (Chinese)	400–600	Kiwi 'Vincent' (female)	0–200
Asian pear (Japanese)	300–750	Mulberry	400
Avocado	0	Nectarine*	200–1,200
Blackberry	200–700	Peach*	200–1,200
Blueberry (Florida)	0–200	Pecan	300–1,600
Blueberry (northern)	700–1,200	Persimmon	100–500
Chestnut	400–750	Pistachio	800–1,000
Citrus	0	Plumcot (apricot-plum cross)	400
Crabapple	300–500	Pomegranate	100–200
Currant	800–1,500	Quince	100–500
European pear	600–1,500	Raspberry*	100–1,800
European plum	700–1,800	Sour cherry	700–1,300
Fig	100–500	Strawberry	200–300
Filbert (hazelnut)	800–1,600	Sweet cherry (most)	600–1,400
Gooseberry	800–1,500	Walnut*	400–1,500
Grape	100–500		

** Low-chill varieties that need less chilling are also available.*

TIP

To find out predicted mature size of a specific cultivar, look on the label, ask a nursery staffer, or look up the plant in a reference book, nursery catalog, or online. If your space is limited, look for a *dwarf cultivar* or one explicitly billed as having a *compact growth habit.* For instance, check out the 'Colonnade' apple tree, which has a single main trunk that only grows to 10 feet tall with short branches. Don't consign yourself to a career of constant shaping and pruning to keep an eager plant small unless you have the time and inclination! (Constant chopping back also runs the risk, of course, of reducing your potential harvest, not to mention making the plant look awkward or unattractive.)

Access may also be a consideration for you. If you dream of simply strolling out with a basket and gathering up fresh fruit, choose a fruit that doesn't require a ladder to care for and harvest from. Examples of favorite, more-compact growers include currant, gooseberry, blueberry (both high-bush and low-bush), strawberry, and some blackberry, raspberry, and grape cultivars. Figure 18-1 shows a typical strawberry garden plan that allows easy harvesting.



A double-row hill of strawberries are set out in two rows 12 inches apart; between the double rows is a 2-foot path for walking.

FIGURE 18-1: Strawberry garden plan aligned for easy harvesting.

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Most all fruit trees sold to home gardeners are dwarf or semi-dwarf, which means the desired height of the trees are determined by what rootstock they're grafted onto. For more information about rootstocks and grafting, see Chapter 10. This smaller size tree makes caring for and harvesting much easier. For an idea about how much the dwarfing rootstock affect the mature size of the trees, refer to Figure 18-2.

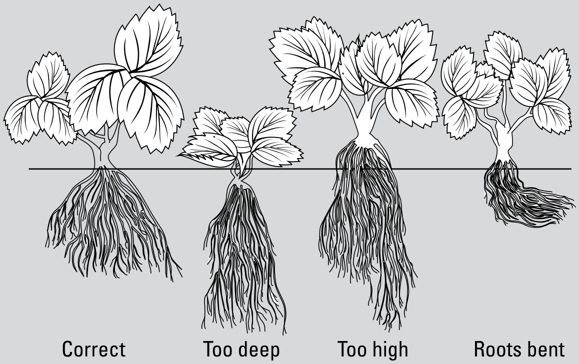
CONSIDERING THE TYPES OF STRAWBERRIES

You basically have three types of strawberries in which to choose (this doesn't count the varieties; there are many more of them). The three types are

- **June bearers:** These are the most common form. They bear a one-time crop in the late spring or early summer, depending on your climate.
- **Ever bearers:** They usually produce two crops: one in the spring and one in late summer, early fall.
- **Day-neutrals:** This type is a somewhat newer form. They bear throughout the growing season because they don't depend on the long daylength of spring to flower and fruit as the June bearers do.

You may think that choosing a type is a no-brainer. Why not always get the ever bearers and day-neutral types so you can have fruit all season long? Well, the kicker is that the June bearers frequently produce a much larger crop than the others, so for most local farm markets the June bearers are the best choice. That's why strawberry festivals are in the late spring, not fall.

Tip: Planting strawberry plants at the correct depth is important. The crown of the plant should be just at the soil level, not above or below. The plant roots should be spread out and not bent to the side. See the following figure that shows the correct soil level for planting strawberries.



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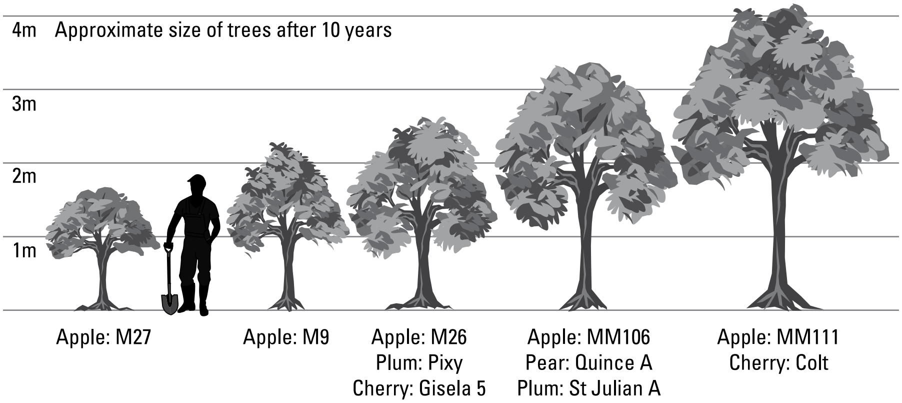

FIGURE 18-2: Various rootstocks determine the ultimate size of the tree.

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Here are a few more ideas to consider as you explore how to fit fruits into your garden:

- Use a line of berry plants as a property boundary.
- Put single berry plants at the corners of your vegetable garden.
- Use a shrub or small tree fruit in your foundation planting.
- Plant a fruit tree in your entryway garden (so long as it gets enough sun).
- Create a small orchard in your back 40.
- Expand your vegetable garden to include a strawberry or melon patch.
- Add a berry bush or two to an informal shrub border.
- Plant berry bushes at the base of a gazebo (not blocking, of course, the way in).
- Site one or more fruit trees in an informal lawn, slight slope, or other open area.
- Plant a fruiting vine so it grows over a pergola or archway, creating shade below.
- Grow a dwarf fruit tree in large container on a sunny patio or deck.

If you have the room, you can also simply install a full-blown fruit garden, like the in Figure 18-3.

Because some plants can’t pollinate themselves, you may have to allow room for two or more plants. See the following section for details.

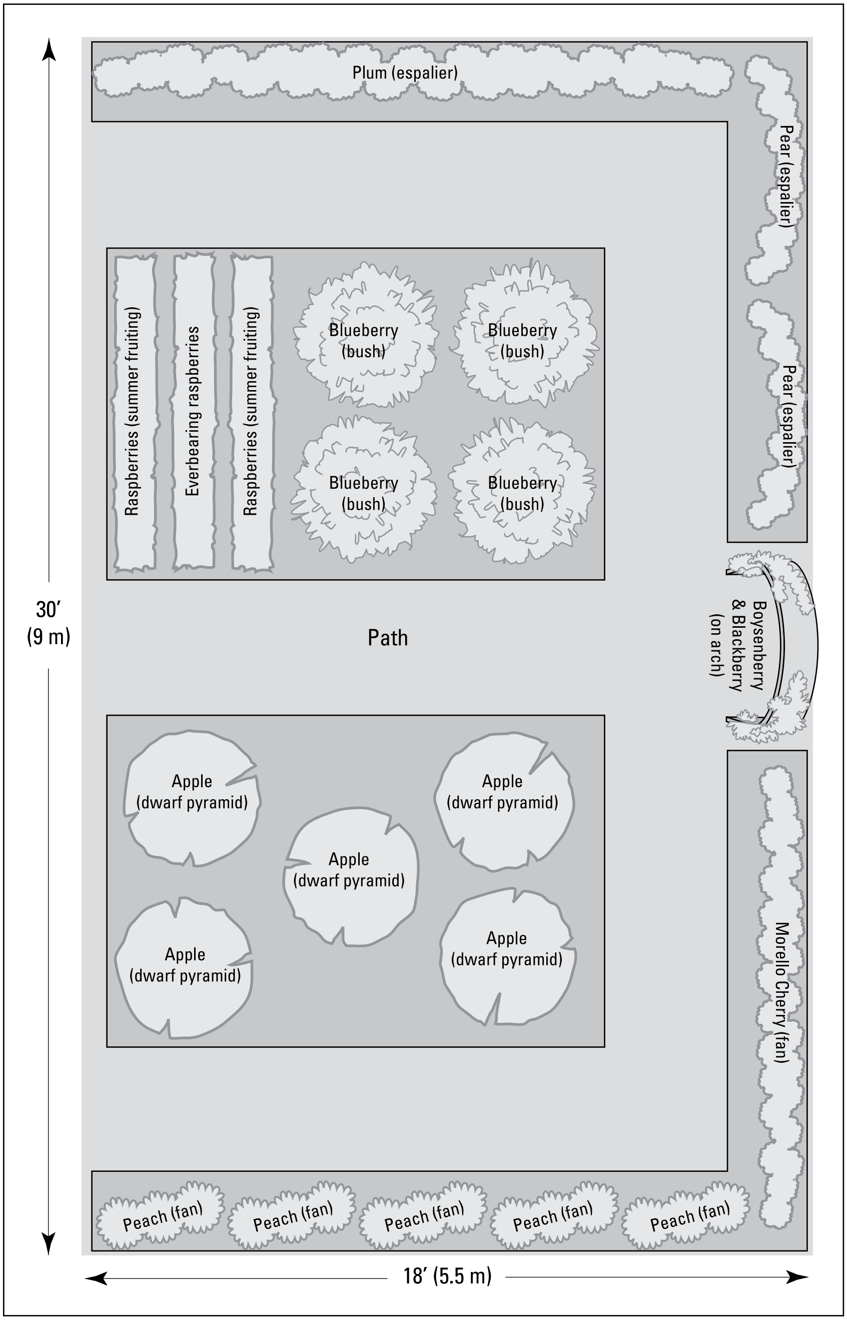
Plum (espalier)
Pear (espalier)
Pear (espalier)
Raspberries (summer fruiting)
Everbearing raspberries
Raspberries (summer fruiting)
Blueberry (bush)
Blueberry (bush)
Blueberry (bush)
Blueberry (bush)
30′ (9 m)
Path
Boysenberry & Blackberry (on arch)
Apple (dwarf pyramid)
Apple (dwarf pyramid)
Apple (dwarf pyramid)
Apple (dwarf pyramid)
Apple (dwarf pyramid)
Morello Cherry (fan)
Peach (fan)
Peach (fan)
Peach (fan)
Peach (fan)
Peach (fan)
18′ (5.5 m)

FIGURE 18-3: Plan for a good-sized fruit garden.

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Going solo or in pairs: Pollination

Certain fruits require cross pollination to set their fruits. Sometimes it's sufficient to plant more than one of the same variety, and other times you must plant a different variety of the same type of fruit to get best results. It's difficult to generalize which fruits this pertains to. Most citrus and peaches are self-fruitful (they don't need other pollinators), but most apples and pears do require cross pollinators. The best approach is to carefully read the catalog or ask the salesperson whether the plant is self-fruitful or requires a different or additional pollinators. If your supplier can't answer this question, buy from someone else. You need a supplier who knows for sure.

Finding and Buying Your Fruit Bearers

Unlike some annual and perennial flowers and veggies, fruit-bearers aren't plants you want to try raising from seed because doing so takes forever! Not only that, but many fruit bearers don't *come true* (have the traits of their parent plants) from seed. No, for the fastest and most gratifying results, buy plants. Here's my general advice, before delving into the different forms in which you can buy fruit plants:

- **Always buy from a reputable source.** Ask around, nose around, and examine the source's guarantee and refund policy. Your local Cooperative Extension Service office may be able to point you toward good nearby sources.
- **Don't bother with bargain-hunting.** You get what you pay for.
- **Require a label and/or accurate identification.** This label includes not only the type of plant (for example, apple or Northern highbush blueberry) but the also the cultivar ('McIntosh' or 'Bluecrop,' respectively).
- **Ask or look for some assurance that your choice is certified or virus-tested.** This is especially important for strawberries and brambles. Virus-infected plants don't always look diseased, at least not at first. If you skip this important question and bring home an infected plant, it'll decline over time, and you may never know why or may think you did something wrong.
- **Check visually for plant health.** Both top growth and the root system should be intact and in good condition, showing no signs of damage, rot, galls, or pests.

REMEMBER

At local nurseries, when buying plants in containers, buy the largest ones you can find and afford so you can get off to a faster start. Confirm that the plant is well rooted by poking into the soil mix and/or tipping the pot and sliding it out to see for yourself. Favor plants with buds over ones that are already flowering, because the trip home or the transition from pot to garden soil is likely to make them jettison blooms early in favor of establishing their roots in their new home. New buds, flowers, and eventually fruit will come along in due course!

You can also get fruits bareroot. You can purchase them by mail with a large range of varieties and types of rootstocks. Bareroot fruit trees are sold as a single stem (called a *whip*) or with multiple side branches (called *feathered*) with some roots. You still need to check with the quality of the root system. Many broken or dried-out roots aren't a good sign. You may end up trimming either the top growth or the roots prior to planting (see the section, "Bareroot plants," later in this chapter), but you want to head into the project with a good plant.

TIP

With mail-order, though, my main advice is to shop with a specialist. Avoid nurseries where the plants aren't clearly or fully identified. Steer clear of nurseries that offer fruit plants only as a sideline. You want people who propagate and ship the plants themselves; they know what they're doing, and this streamlined system also keeps the quality higher and the costs down. Find such companies in the ads in gardening magazines or online.

Planting Your Fruit

When you think you're ready to plant, the first thing to do, probably even before you acquire your plants, is prepare the soil. It's a far, far better thing to deal with the soil before you plant than after — a berry bush, fruit tree, or strawberry patch is a major landscape investment, and there's no sense in cutting corners from the get-go.

REMEMBER

Good-quality soil is especially important when raising edibles. You want your crop to be both safe and tasty. Do a soil test on the intended spot (buy a kit, follow the directions, mail the sample into a lab, and await recommendations).

Because you remember to name on the form the sort of fruit you intend to raise, the recommendations for soil improvement that come back from the lab are tailored to that crop. For example, blueberry bushes prefer a lower pH, so the lab may suggest that you add some sulfur to make your ground more acidic; peach trees and certain European grape cultivars like conditions a bit more alkaline, and some supplemental lime may be in order. Note that these amendments take time to move through the soil, so try to add them the fall prior to spring planting.

Organically rich soil, not surprisingly, is ideal. It offers a slow-release reservoir of nutrients your fruit-bearing plants need and relish. Dig some in ahead of time, and replenish it at least annually. It lightens heavy clay soil and improves sandy soil, making the entire area more hospitable to plant roots. Good choices include compost, well-rotted manure, rotted sawdust, chopped up leaves, and spent mushroom soil. Yes, adding periodic doses of fertilizer can also help your crop along, but you need this initial foundation.

Here I explain what other requirements are necessary to be successful in growing various fruits.

Making the soil deep and wide enough

As with so many other plants in your garden, fruit-bearing plants need ample space for their roots to develop. Sufficient soil both nourishes and anchors plants. Take measure of how extensive the root system is on planting day, and then go farther to allow for future growth.

For example, because strawberry plants generally send their roots 6 to 12 inches down, you should provide them with prepared soil that's at least that deep, with several more inches to spare. An apple or plum tree, on the other hand, may send roots many feet deep into the ground over the course of its career; you're not likely to be willing or able to excavate a major hole and have to count on the chosen spot having decent soil. Just give a young rootball ample space. Usually, a hole 12 to 18 inches deep and wide does the trick. Remember to scrape the sides of the hole with your shovel or trowel to loosen the soil and thus help the roots expand beyond its bounds.

As for width, accommodate the rootball and then some. For a fruit tree, although you may not dig a hole that extends as far as the branches and roots may someday extend, you can spread amendments out that direction, mix them in, and leave them to work their way down gradually.

Choosing the best time to plant fruits

Here's the basic principle about timing, folks: Plant to allow maximum time for the fruit plant to get growing before the most stressful conditions of the year occur. In colder climates, get the plants in the ground in the springtime or early fall so they can enjoy a nice, long summer before cold weather arrives in the fall. Wait till after danger of frost is past so young buds aren't harmed or killed. Plant bareroot plants as soon as you can work the ground.

In mild climates, the stressful time is the height of the hot summer, so you're often better off planting fruits in early spring or fall. This timing allows young stock to establish their root systems before being called upon to produce new spring growth. Still-warm soil and, hopefully, drenching fall rains can welcome the new arrivals and hasten this process along.

Deciding where to plant your fruits

Gardeners talk about three main factors that you should consider when finding a home in your landscape for fruit, nut, and berry plants. Ideally, you want to satisfy all these conditions so your crop doesn't struggle:

- **Sun:** Plentiful sun is a requirement — I'm talking at least six to eight hours a day, or even more. Fruit simply doesn't develop or prosper in shady conditions (even plant foliage may suffer or be sparse). So choose a south-facing spot, or in a pinch, east or west-facing. (Morning sun — an east-facing exposure — is better because it dries morning dew; morning dew that hangs around too long can cause fruit to rot.)
- **Elbow room:** Pick a site out in the open, well away from the shade cast by a house, other building, fence, or other obstruction. Prune back any nearby shrub or tree branches that may be encroaching. Planting distances vary for type of fruit and the rootstock it's on. Read the planting distance guidelines in the catalog or on the plant label.
- **Drainage:** You want a spot with decent soil and good drainage. No berry-producing plants or fruit trees like wet feet (naturally damp spots or ones that hold rainwater for more than 12 hours). This waterlogging deprives the roots of needed oxygen and may actually inhibit the uptake of some soil nutrients.

  TIP

  If drainage is iffy in your yard, favor an upland spot or slope. In any event, planting fruits in the lowest part is never advisable. Heavy clay soil is a problem — though improving drainage by digging in lots of organic matter is possible. Alternatively, you can go to the trouble of creating a broad and deep (up to a foot, depending on what you plan to grow) raised bed. See Chapter 15 for more info on raised beds.

WARNING

Here's where *not* to plant and why:

- **Low, boggy areas:** These spots have poor drainage.
- **Steep slopes:** Slopes are hard to plant, and the plants are hard to care for.
- **Shade:** Fruit doesn't develop without days in the sun.
- **Lousy soil:** Plants struggle in poor soil.
- **The middle of a pampered lawn:** Lawn fertilizer is too nitrogen-heavy for fruit plants, and mowers and string trimmers can be a hazard.

- **Against a wall or fence:** Barriers crowd a plant, and poor air circulation isn't good for its health (the exception is an espaliered fruit tree — see the section, "Supporting and training your fruit," later in this chapter for more details).

Getting your fruit in the ground

How to plant fruit depends very much on the type of fruit you want to plant and what form it comes in. In the following sections, I first give you some pointers on planting according to whether your fruit is initially available to you in a container, as a bareroot plant, or as a balled-and-burlapped tree. Then I tell you how to plant a berry patch, because you handle growing berry patches slightly differently from other ways of growing fruit.

Container plants

Container plants are the form in which you commonly find berry bushes and some small fruit trees. Assuming you have an appropriate spot ready, the planting process is simple and logical if you follow these steps:

1. **Choose a good day.**

   Waiting until the danger of frost is past isn't a bad idea, but most fruits are frost tolerant. Plant when the weather is overcast or drizzly. A hot, sunny day also isn't good. Plant later in the day on a clear day.

2. **Prepare the plant first.**

   Water it well and let excess drain away. Groom it lightly, trimming away any damaged branches and leaves. Pinch off buds, if any (most, not all); this encourages the plant to redirect its energies toward root development. After the plant establishes itself, it'll surely generate new buds.

3. **Pop the root system out of the pot.**

   If the root system is thick and dense, sliding a butter knife or stick around the perimeter should dislodge it; perhaps you can cut the container away with tin snips. Tease the roots loose on the bottom and a bit on the sides; doing so encourages the plant to venture out into its new home in your garden soil. If the plant is rootbound, score the sides at four or so even intervals with a sharp knife, slicing only about an inch in; this scoring severs girdling roots and inspires new feeder roots to start.

4. **Plant it at the same level it was growing in the pot and water.**

   Backfill soil into the hole and firm it into place to eliminate air pockets. Water well, let the ground settle, and add more soil as needed.

Bareroot plants

Most fruit trees, and sometimes berry-producing shrubs, are sold as bareroot plants; strawberry plants are commonly sold in small bareroot bundles. These plants are dormant, which means you can buy and plant them earlier in the gardening year — as soon as the soil is dry enough to crumble easily in your hand. If you can't plant right away, store bareroot plants in a cool, shaded spot and keep the plant moist. Refer to Figure 18-4 as you read through the following steps.

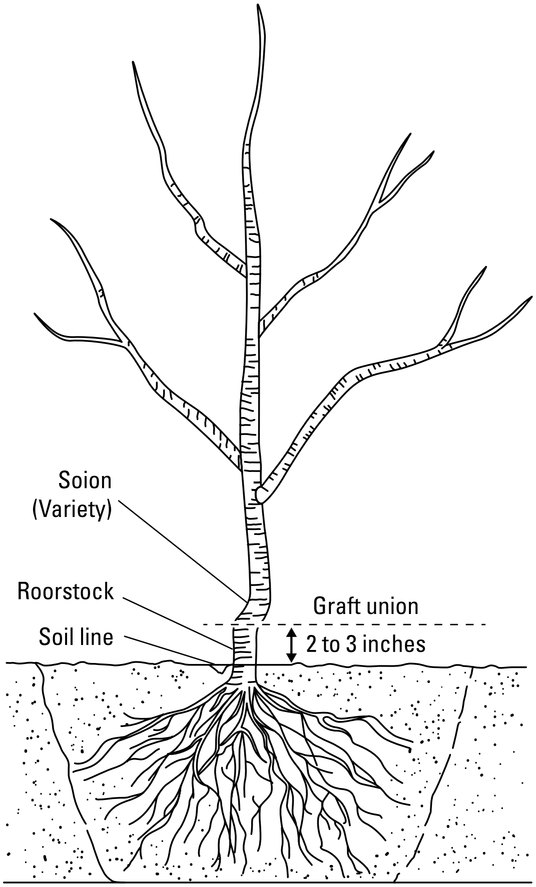

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FIGURE 18-4: The correct way to plant a bareroot fruit tree.

On planting day, here are the steps to follow:

1. **Prep the plant first.**

   Unwrap the plant, and if the roots are more than a foot long or look damaged or frayed, trim them back with clean, sharp clippers. Then soak the roots and stem in a bucket of tepid, muddy water (add a handful of soil) for a few hours or overnight to rehydrate them. As for the top growth, if the plant has branches, shorten them to few inches (cutting to just above an outward-facing bud); this trim inspires vigorous, spreading growth. If the tree or shrub is a mere whip (single stem), cut it back to 2 or 3 feet tall if the grower hasn't already done so.

2. **Make a mound inside the hole.**

   Use the excavated soil (or a mixture of it and some organic matter) to make a mound in the hole; you'll set the plant here and array the roots on it, so make the mound tall. To allow for some settling, adjust the height of the mound so the plant will stand about 2 inches higher than it stood at the nursery. (How do you know? Look for the telltale old soil line low on the trunk.)

3. **Add the plant and position it.**

   Place the tree or shrub atop the mound and spread the roots out evenly on all sides. Be careful not to bend or break them, and don't crowd them either. If the tree is branched, orient it with the lowest branch facing southwest — this positioning will eventually help shade the trunk and lessen the chance of sunscald. If the site, being out in the open, is windy, lean the tree ever so slightly into the direction of the prevailing winds.

4. **Backfill.**

   Hold the plant steady (or get a helper to do so) and scoop soil back into the hole. You may have to bounce the plant up and down slightly as you work to settle the soil among the roots. When it stands on its own, add more soil, tamping it down gently with your hands as you work to prevent air pockets.

5. **Create a basin.**

   Make the basin about a foot or two out from the trunk, mounding up soil to several inches high. Fill it partway with compost or other organic material, which will nourish the new young feeder roots that are developing. Top off with some weed-inhibiting mulch.

6. **Water.**

   Finally, soak slowly and thoroughly today and at least once a week for the rest of the season, unless you get good rainfall. A young fruit tree or berry bush is a thirsty plant.

Balled-and-burlapped plants

Fruit trees and larger berry-producing shrubs may be available in balled-and-burlapped form. It indicates that the plant was recently field-dug, and the purpose of the burlap or other cloth and trusses is to hold the soil protectively in place around the rootball. Here are the steps to follow to return the plant to the ground in your own yard:

1. **Get the hole ready.**

   The size of the rootball in this case is perfectly obvious, which is nice. Make the hole slightly bigger, both for maneuverability and also to encourage the roots to move outward in their new home. Assuming the plant is not too big, you can check your work by temporarily holding the trussed plant in the hole.

2. **Double-check depth.**

   Set the trussed rootball in the hole, and then place a piece of lumber or a rod of some kind across the top of the hole. The top of the root mass should meet it. If not, you know what to do — take it out and dig more or backfill a bit.

3. **Unwrap the plant.**

   Do this unwrapping outside the hole but right nearby. Cut off or unwind all rope, twine, string, or whatever is holding the burlap or cloth in place. Be especially careful to get off any material binding the trunk. Modern "burlap" may contain synthetic (plastic) material that practically never decays, so don't leave the burlap on. Some rootballs are also enveloped in a planting bag or wire basket — whatever you have, remove it.

4. **Plant.**

   Set or wiggle the rootball into the prepared hole and backfill thoroughly to eliminate air pockets. If the site is windy, lean the tree slightly into the direction of the prevailing winds.

5. **Create a basin and water.**

   Make the basin about a foot or two out from the trunk, mounding up soil to several inches high. Fill it partway with compost or other organic material, and top off with some weed-inhibiting mulch. Soak slowly and thoroughly at planting and at least weekly till the end of the season (unless you get good rainfall). Watering is particularly critical because the rootball may have dried out while it was out of the ground, despite its protective wrapping.

Brambles are the berries!

Want to grow raspberries, blackberries, or marionberries? Planting a berry patch is a little different because you have to prepare an entire area and install future support. I advise starting with a single row. The reason for the trellis is that it keeps your plants upright (rather than in a slumping tangle); this method keeps the plants drier and thus less prone to disease, and they're much easier to harvest from.

WARNING

Don't grow cultivated brambles anywhere near wild ones or near an area where you grow or have recently grown eggplants, peppers, tomatoes, potatoes, or strawberries — all these plants can host diseases that are harmful to cultivated berries.

Here are the steps to follow when creating your berry patch:

1. **Make the row.**

   Clear out an area of all weeds, grass, and physical obstructions. The row should be about 2 feet wide and as long as you want.

2. **Create a planting trench.**

   The roots of berry bushes are likely to grow down to about a foot deep, so excavate to at least that depth. Improve the soil with organic matter and with amendments that adjust the pH, if recommended by a soil test.

3. **Erect support.**

   The object is to keep the canes off the ground and not to crowd them. You want good air circulation, which lessens the chance of disease. Use wooden posts (rot-resistant wood, like cedar) or metal posts, plunge them deeply into the ground, add braces if warranted, and then run strong wire between them to support and confine the plants. Your support setup options include

   - A patch with posts at four corners
   - Single posts at each end of your row
   - Single posts with crosspieces

   The standard advice is to rig the wires at 2- to 3-foot intervals. Check out Figure 18-5.

4. **Plant.**

   Space the bushes at even intervals, 2 or 3 feet apart down the row and right under the lowest wire. Follow the previous planting directions in the section, "Container plants," including giving each plant a good soaking.

5. **Cut back.**

   After planting and watering is complete, tiptoe into the patch with your clippers and cut the plants off at ground level. You don't want the plants to charge into early growth and fruiting. Instead, this step forces your new berry plants to focus on establishing and expanding their root systems. New canes will appear soon enough.

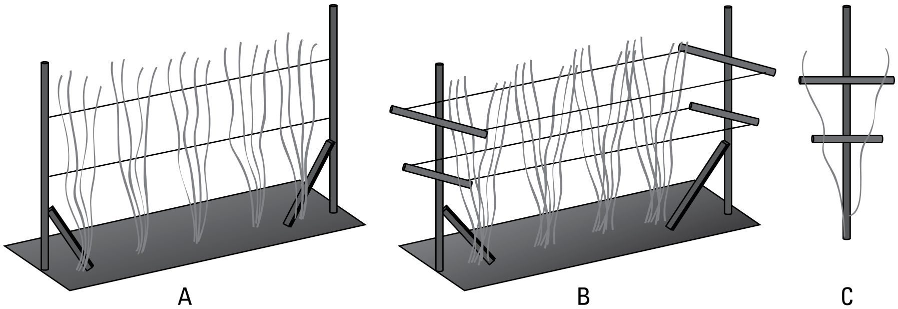

FIGURE 18-5: Examples of support systems for raspberries: Single row (A), double row (B), and end view (C).

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Taking Care of Fruits

Modern fruit cultivars are bred to be productive and deliver a bountiful harvest. This trend is all well and good, but there are downsides. The sheer volume and weight of lots of fruit can cause a plant to slump, slouch, bow down, or trail fruiting branches on the ground. Also, humans aren't the only critters who like to eat fruits and nuts, and keeping these crops protected well enough so you can have something to show for all your hard work can be a challenge. In this section, I give you the pointers you need to keep your fruit healthy, happy, and plentiful enough to enjoy!

Watering

Although too much water or poor drainage can drown a plant or encourage disease, fruit plants still need moisture. Shallow-rooted crops, like blueberries and strawberries, especially need ample water. If your climate provides natural rainfall, you may still have to supplement it. The most critical periods are at planting time and during fruit swell.

I recommend trickle or drip irrigation for watering berry-producing plants, either with a soaker hose, a regular hose set quite low, or an in-ground system with emitters especially designed for this purpose (see Chapter 4). These methods avoid wetting the fruit (wet fruit is susceptible to rot, a particular concern for raspberries, blueberries, and strawberries), yet allow the water to reach the roots evenly and gradually.

Fertilizing

Unlike, say, vegetable crops, the majority of fruit-bearing plants are not heavy feeders. If your soil is fertile or you've improved soil fertility prior to planting, feeding is not a big part of maintenance. (Sure, commercial orchards dose their trees and bushes on a regular basis, but they're aiming for maximum yields; home growers can afford to be less indulgent.)

In any event, apply fertilizer to soil that's neither excessively acidic nor excessively alkaline (address soil acidity prior to planting anyway after having a soil test done).

When you do feed your fruit trees or berry plants, use a complete, balanced, all-purpose fertilizer specifically marked for fruit and nut trees applied at the rates described on the label. More is not better! A dose in spring as the growing season begins is a good idea, and perhaps fertilize once again when the fruit is starting to form. (Don't feed later in the season, which can inspire fresh new growth that may not have time to harden before cold weather sets in and potentially damages tender shoots.)

Some fertilizers can be top-dressed. Top dressing is the surface application of fertilizer that is scratched into the top inch or two of the soil. You poke others into the ground at intervals above the root system. The nutrients get to the plant roots only when watered in. In fact, you're best off watering before and after feeding the plants.

REMEMBER

No particular type of fertilizer can compel your fruit to bear at an earlier age. The age of bearing is mainly influenced by the variety, how and when you prune, and by some rootstocks in the case of grafted fruit trees.

Cutting back on mulch

I know, I know, you're always being told to mulch garden plants to keep weeds at bay and conserve soil moisture. But mulching isn't as critical with many fruit plants because the trees tend to cast shade over their bases, which helps with such matters. Mulch can even be a detriment in a berry patch or small orchard because it can harbor pests — hungry little rodents, particularly voles, or voracious slugs. See Chapter 8 for details on how to control voles.

Supporting and training your fruit

To keep your harvest off the dirt and in the air where it's able to develop freely and enjoy good air circulation and plentiful sunshine, supports may be in order. A wide variety is available, depending on the fruit you want to grow. Figure 18-6 shows two of many different ways to train grapes with supports.

Supports also help keep a developing harvest visible and accessible and serve to train the fruit in a certain way to make it easily accessible; they also ensure a larger harvest. This support may involve anything from bracing boards under a heavy branch to a sturdy trellis to rigs of posts and wire. Figure this need into your plans when selecting both a spot and a cultivar.

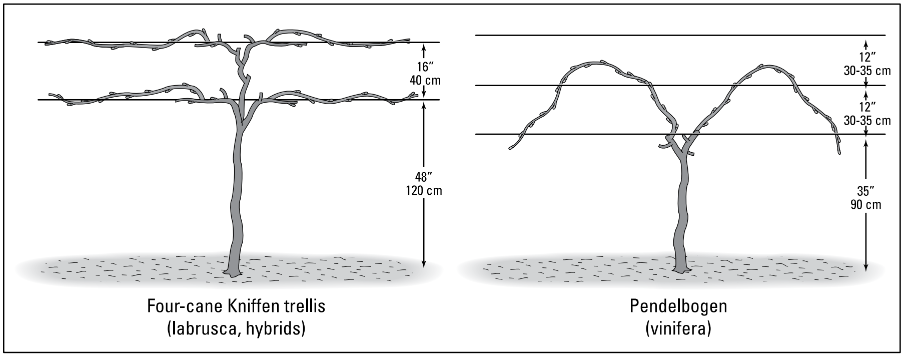
16″
40 cm
48″
120 cm
Four-cane Kniffen trellis
(labrusca, hybrids)
12″
30-35 cm
12″
30-35 cm
35″
90 cm
Pendelbogen
(vinifera)

FIGURE 18-6: Two common grape-training systems.

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All the systems have one thing in common: They're designed to keep the vines off the ground so the fruit has good air circulation, exposure to sunlight, and is easier to harvest. If your vines don't end up looking just like a book drawing, don't worry. It isn't critical.

Fruit tree training systems, on the other hand, are designed to expose the fruit to good air flow (to reduce disease) and to bright sunlight (to ripen the fruit), and to encourage a tree structure that is strong and will encourage more fruit production. The ones in Figure 18-7 are fairly easy one to follow, but others may be equally as successful.

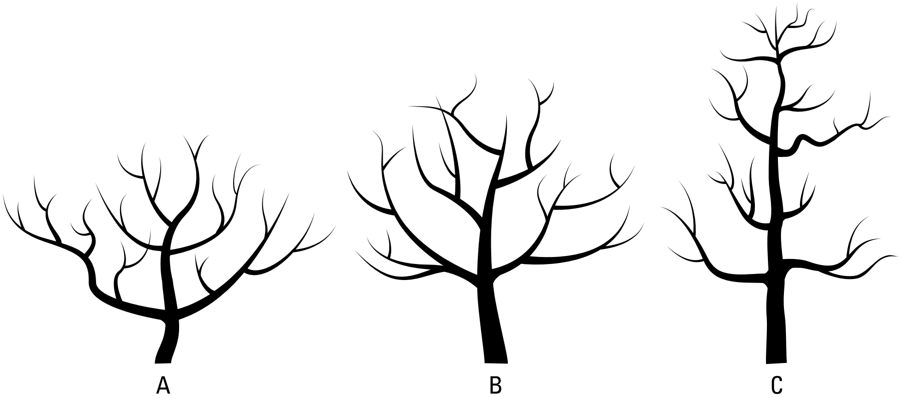

FIGURE 18-7: Three common fruit-tree training methods: Open vase, or center (A), modified central leader (B), and central leader (C).

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Pruning

Fruit-bearing plants need regular pruning. It keeps the plants in bounds, attractive-looking, healthy, and — perhaps most importantly — helps them be more productive.

TIP

Always use clean, sharp tools when you prune. *Clean,* because you don't want to spread disease, and *sharp,* because blunt cutters mash and crush stems and branches. And always use the right tool for the job; applying a hand-held clipper to a thick branch is frustrating and foolish (Chapter 5 can fill you in on tools).

You can quickly sterilize your pruning tools with a hand propane torch like the ones sold for making crème brûlée. You can also dip them in a disinfectant solution of 10 percent bleach, but if you do that, make sure to rinse off the blades after each use because bleach is extremely corrosive.

Finally, if any of this sort of maintenance is too difficult, too dangerous, or too time-consuming, consider scaling back your plans or hiring qualified help. Whatever you do, don't let the problem go. A neglected fruit tree or berry patch is a sorry sight, not to mention hard work to reclaim.

REMEMBER

Here's the general rule: Prune fruit plants when they're dormant. You're better able to see what you're doing without a lot of foliage and so forth in the way, both in terms of shaping the plant and making sure you cut right above a bud. You also get little or no sap bleeding. And when growth starts up, the plant should grow as you plan and direct.

Tree fruits

A crop of tree fruits can be heavy, so shape a tree from an early age so it has a strong framework that can bear the weight. That said, do no more pruning on a young tree than is totally necessary, or you risk delaying its first crop.

Scaffold limbs are evenly spaced, come out from the main trunk at wide angles, and over time have a spiral arrangement around the trunk. Take out branches that crowd, cross, or shade others, right at the trunk (leave no stubs, in other words).

In later years, do an annual pruning to maintain this early form. Cut to reduce the fruit load and stimulate new shoot growth. How much should you cut? It depends on the size and heft of the particular fruit and the bearing habit of the tree. So read up in more detail on your particular tree or get the advice of a more experienced fruit grower.

TIP

Apples, pears, and other tree fruit often have *June drop,* in which immature fruit fall from the tree. This natural fruit loss is a reminder to thin the fruit. Too many fruit clustered too closely together don't ripen well, nor do they reach their ideal size. Thin so you have 6 inches between fruits. Remember that pruning and thinning are harder on you than on the plant.

TIP

A grafted fruit tree is one where the top part of the tree (called the scion) is grafted or joined to the rooting portion of the plant called a stock or rootstock. The rootstock of the tree determines its vigor and growth habit (full sized or dwarf) while the scion determines its flowering and fruiting characteristics. By grafting you're able to get a desired result — like a dwarf growing tree with a strong, vigorous roots system that bears large, flavorful fruit.

TIP

I haven't said much about nuts. They pretty much have the same cultural requirements as fruits. Probably the most common nuts grown are walnuts and pecans. Walnuts have the advantage of possessing valuable wood too. These nut trees do take up quite a bit of room (can grow 40 to 60 feet) and take 4 to 8 years to mature. For faster results (2 to 5 years), you may want to try hazelnuts.

Shrub fruits

Fruits that grow on bushes need to be prevented from becoming crowded; a tangle is difficult to prune, tricky to harvest from, and more prone to diseases and pests. You don't have to do much the first season or two, but in subsequent years, you have to make an annual habit out of thinning out the older wood (older branches, older canes). Burn or trash the weaker and older dried up or diseased limbs or canes. This pruning makes way for the new shoots, which, believe me, are *always* coming on. If you see a lot of new shoots, you may even have to thin out some of them. Figure 18-8 shows how to prune raspberry bushes; you can apply this method to most other shrub fruits.

WARNING

Some berry plants produce fruit on first-year canes, some on second-year canes, so be careful that you don't cut out all the productive canes in your zeal to control the patch. You can find out which kind your berry bushes are either by simply observing or by asking when you purchase the plants.

The normal bramble life cycle of many shrub fruits is to produce a vegetative cane *(primocane)* in the first year; it overwinters, becomes a fruit-producing cane *(floricane)* the following year, and then dies. So your training becomes a cyclical matter of supporting these stems, encouraging them to stand up and trail outward along the wire, and removing them at ground level when they're through at the end of their second year. You can use cloth ties or just guide the fast-growing, lax, thorny stems.

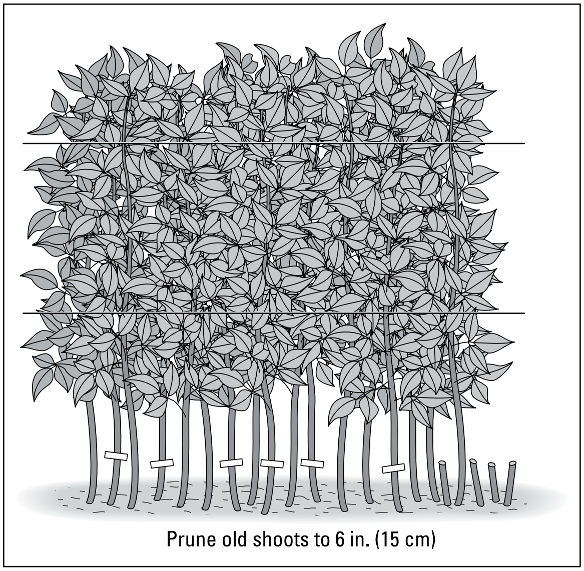
Prune old shoots to 6 in. (15 cm)

FIGURE 18-8: Raspberries should be pruned so that they don't grow together too densely.

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Vine fruits

How you prune grapes, hardy kiwi, and other vining fruits depends on the sort of support you've chosen for them and how much space you allow them to fill. At the outset (the year you plant), cut back rather drastically to a few buds. This trim channels energy into growth of one or two main stems or "trunks."

Subsequent side branches, evenly spaced off the main trunk, are called *cordons* and are considered more or less permanent. Often, the more of these, the better — it makes for a fuller and more productive vine in the long run. So give the plant good care (regular water, fertilizer, and so on) in its first season or two so you can encourage plenty of cordons. From these come the third tier of branches, known as *fruiting arms.* These structures get a season to produce and then should be cut back somewhat or all the way back to the originating cordon in order to stimulate new ones and a fresh crop. That's it. Not as hard or complex as you thought, eh?

REMEMBER

If you don't prune a vine fruit each year, it can soon grow longer and higher until the fruit you want is far out of reach. To bring it back down into range, all you need to do is identify and cut back to a main trunk and some evenly spaced cordons; cut back while the plant is dormant.

Dealing with fruit pests

Homegrown fruits are so delicious that we aren't the only ones that like to eat 'em. If a certain kind of pest or disease is a common problem in your area, choose a variety that's billed as resistant. Your local Cooperative Extension agent should be able to help you with this selection.

And, of course, a healthy plant is a more resistant one. So take good care of your fruit plants, making sure they have the sun, space, air circulation, water, and food they need to thrive. In particular, water at the base of the plants so the foliage and fruit doesn't become wet; this method heads off at the pass all sorts of fungal problems.

In case these preventive measures fail, the following sections outline some tactics for warding off the competition.

Targeting birds, bugs, and beasties

No matter how healthy your plant is, you may still end up doing battle with the animal kingdom:

- **Birds:** These flying scavengers adore berries and strike with precise timing, at the peak of ripe perfection. Don't allow this pilfering! Cover the plants after flowering is over (so you don't thwart pollination) but before green fruit begins to ripen. Use plastic netting, cheesecloth, or anything that covers the plants but still lets in light, air, and water. For larger berry patches, some gardeners rig a wooden framework over them and drape the protective cloth or plastic bird netting over this; then they can just lift one end to harvest, like raising a flap to enter a tent. Pin the edges of the material to the ground with landscape staples and secure the ends with clothespins.

  Covering the trees with netting may or may not be practical, depending on their size. At the least, you can try draping netting over the lower branches and letting the birds have the higher-up fruit, which is harder for you to harvest, anyway (see Figure 18-9). Hanging bright and noisy objects from the branches, such as pie tins, even used CDs sometime works.
- **Rodents:** Gnawing critters can do extensive damage to fruit trees. Wrapping the trees with a protective covering sometimes helps. Also, be sure not to pile mulch up against the trunk of the trees over winter. Doing so can provide a cozy hiding place for these creatures that may make a meal of the tree bark during the freezing weather.
- **Bugs and other creepy crawlers:** Sorry to say, you're up against all sorts of buggy threats, from ravenous caterpillars on apple trees to aphids, mealybugs, and spider mites that infest citrus trees. If you're already growing an allegedly resistant variety and you're genuinely giving your plants good growing conditions and good care, the situation seems so unjust! What can you do? You're not out of the fight yet:

- **Practice good sanitation.** Remove all plant debris at the base of the plants and groom the plants often to get rid of any growth or fruits in poor condition or already affected. Get rid of all of this material — send it away with the household garbage!
- **Identify the culprit.** You can't truly fight back until you know thy enemy. If you need help with identification, take an affected plant part and/or the suspect to your local nursery or a knowledgeable landscaper.
- **Try nontoxic weapons first.** If practical, knock off pests with a blast from the hose or hand-pick the offenders. Spray with insecticidal soap (or a fungicide, if the problem is a disease and not a pest). Introduce beneficial insects that target this pest.
- **Spray pesticides only as a last resort and with an appropriate product for the problem.** Always follow label instructions to the letter regarding dose and timing, and protect yourself with full-body clothing and goggles.
- **Inspect and wash off all fruit before eating or cooking it.** You may learn to tolerate small imperfections rather than declare an all-out war.

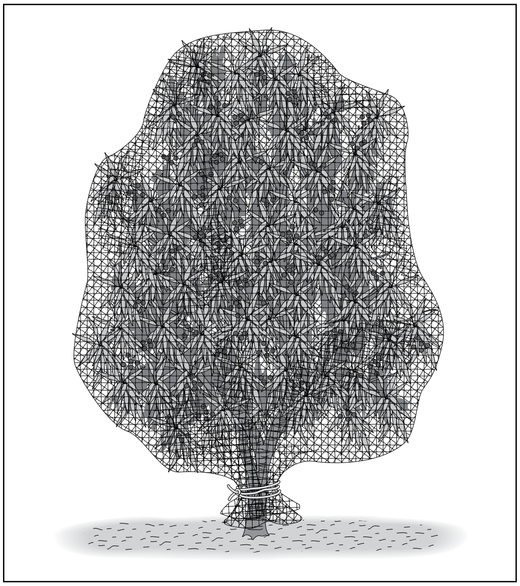

FIGURE 18-9: A fruit tree or shrub covered with netting keeps the birds at bay.

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The blanket effect: Spraying fruit trees

Unless you don't mind finding tunnels in your ripe fruit, biting into a fat worm, or having to discard the crop you worked so hard to grow, you have to do at least some spraying, especially for the tree fruits. The spraying is preventive. Spraying controls both bugs and diseases that can harm your crop.

Organic or synthetic, the product you want for this job is an all-purpose mixture of fungicide and insecticide labeled for orchard use or a dormant oil. Buy these products at any nursery or garden center in the springtime. Follow the label instructions regarding application and timing to the letter, and be sure to wear protective clothing and to use a good, clean sprayer.

Halt spraying two or more weeks before harvest, and always wash your fruit before eating or cooking it. Here's a typical schedule:

- **Early spring, when tips of buds are swelling and showing green:** This spraying combats late scab, brown rot, and other common woes. The first spray of the season is the most important and should head off at the pass numerous potential pest problems. It controls scab (an early-spring problem, technically a fungus) and early flying insects, such as coddling moths.
- **A few weeks later, when leaf buds (not flower buds — leaf buds are thin and pointed) are just unfurling:** Like the first spraying, round two fights late scab and brown rot.
- **At blossoming, when the fat, colored blossom buds (white or pink, usually) are almost ready to burst open:** This prevents diseases that attack these young flowers that will eventually infect the developing fruit.
- **At petal fall, when nearly all petals are off the tree:** Insects are beginning to hatch just now, so this spray is especially critical.
- **Later sprays — every week or two, as needed:** These sprays control mites, sawflies, curculios, and apple maggots, as well as summer diseases like scab and brown rot.

5

Designing Special and Fun Gardens

IN THIS PART . . .

Explore different types of containers, the recommended potting materials, and the best way to fertilize to ensure showstopping container garden plant combinations.

Choose containers that are functional and aesthetically pleasing, no matter the size of your home.

Discover the art of making your own miniature gardens.

Enter the world of water gardening and see how these gardens are constructed, where they perform best, and which plants thrive in them.

Enjoy the movement and flashing color of fish in your water feature and see how you can provide these creatures with the comforts of home with filtration systems and plantings.

IN THIS CHAPTER

- Looking at different possibilities and variations of containers
- Choosing your soil mix
- Picking out the right plants
- Grouping containers
- Caring for your miniature gardens

Chapter 19

Mini Gardens and Microcosms: Gardening in Containers

Raising plants in containers is quite possibly one of the most satisfying and fun types of gardening. It's so easy — all you do is supply the right soil and water and fertilize as needed. And the show is perfectly versatile and portable! You can move pots around to capture more sun, to join a grouped display, or to decorate front steps, a back patio, or a tabletop. You can even use potted plants to inject color or interest in your in-ground displays. With a variety of containers, some attractive and colorful plants, and a dash of creativity, you can really boost your home and garden's interest and appeal.

I cover the basics of container gardening in this chapter. If you want a lot of detail about container gardening, I recommend reading the newest edition of *Container Gardening For Dummies* by Bill Marken, Suzanne Dejohn, and the editors of the National Gardening Association (John Wiley & Sons, Inc.).

Exploring Different Kinds of Containers

Container gardening is all about growing plants in containers of all kinds. Going hunting for pots and other potential containers for plants can be a lot of fun. Often you put the horse before the cart — in other words, you choose the pot first and the plant second. This order isn't mandatory, of course, but it has the advantage of letting you picture and plan the look you want.

Before you impulsively start collecting all sorts of pots, remember three key practical concerns when picking out a container:

- **Drainage:** Most potted plants don't like to sit in soggy soil, so a way for the water to drain through is critical. Turn over every pot or potential container to see whether it has drainage holes. If not, perhaps you can add a hole with an awl or high-speed electric drill/masonry bit. You can grow plants in pots without drainage holes but doing so requires a lot of care to make sure the roots of the plants aren't sitting in water. ***Note:*** If you don't want water getting onto the display surface, naturally you want to include a saucer. Lots of pots are sold as pot-and-saucer sets.

  TIP

  To decrease the possibility of cracking or breaking a clay pot when drilling to create one or more drainage holes, tape over the area to be drilled with masking tape and then drill through the tape.

  TIP

  Don't risk breaking an expensive or unique pot by trying to make a drainage hole. Instead, use the container as a *cachepot,* a decorative pot that hides another container: Fill the bottom 2 inches of the pot with pea gravel, and then put the plant into a smaller plastic pot that fits into the ornamental one. This is called *nesting.*

- **Color:** A neutral hue (white, tan, brown, or plain green) lets the plant be the star. On the other hand, a brightly patterned container adds drama and excitement to an otherwise rather ordinary plant display. You can also look into matching a color on the container to a flower or foliage color. Done well, this effect can be quite fabulous.
- **Longevity:** Think about whether you want to use this container for just one summer or whether it's going to be a long-term feature of your yard and garden. And decide whether you want to leave the pot exposed to the elements all winter. Inexpensive pots, of course, tend to be less durable, to break or crack or fade when left out for a long time in the sun and weather. Thicker, heavier pots are much more of an investment. This concept's true even if the plants within change over time or from one year to the next.

These sections run down container sizes, shapes, materials, and so on.

Examining standard container materials

What a container is made of is actually very important, and it's something you should be aware of when searching for the perfect container. For example, you want a container that

- Is nontoxic to plants
- Doesn't overheat quickly in the hot summer sun
- Is durable enough so it can continue to serve and support its contents and look good on display
- Can withstand freezing (if you're planning to overwinter plants in it)

Here are the container material options you're likely to encounter:

- **Plastic:** Lots of containers are made of plastic, from flimsy to substantial. It's an extremely practical material, inexpensive and versatile. However, it tends to hold in moisture and not breathe well, which may or may not be a problem for your chosen plants.

  If you go with plastic, have fun — don't limit yourself to the ubiquitous white and green plastic pots when with a little searching, you can find other colors and even patterned ones. Some of the better faux terra cotta plastic pots are really quite attractive and are a great lightweight alternative to pottery or real terra cotta. If you opt for the self-watering containers, make sure that they have an overflow so if you have a heavy rain, your plants won't be floating in the container.
- **Terra cotta:** Technically, terra cotta is unglazed pottery. It's a garden classic and looks handsome in so many situations. It's generally quite affordable. Drawbacks? Well, it wicks moisture away from plant root systems, and over time, it tends to develop cracks or flake. Because terra cotta absorbs water, which expands when it freezes, the container can crack and break if you leave it outdoors when the temperatures dip below freezing. It can also become encrusted with mineral deposits from water and fertilizer and become covered with algae.
- **Glazed pottery:** With glazed earthenware, you get to enjoy the greater heft of clay but have more color options and perhaps elegance as well. These containers are fairly durable, though they, too, can crack in winter if any small portion isn't glazed.
- **Wood:** Containers of wood, especially softwoods like pine and fir, sop up moisture and eventually rot or fall apart. Yet there's no denying the wonderful rustic look. The solution may be to nest a plastic pot inside a wooden

container. Otherwise, you may get more use out of something constructed from rot-resistant wood such as cedar.

- **Metal:** You can press metal containers into plant-holding service. Remember the need for a drainage hole and beware of displaying it in full sun, which causes it and its contents to really heat up. Some possibilities include old olive-oil containers, buckets, and cast-iron kettles. Rust can be an issue with some of these containers.
- **Concrete:** When you want a tough, long-lasting, cold-resistant container, concrete is a fine choice, whether as an urn or as a planter box. It can be pretty heavy and hard to maneuver, though. Therefore, put it on the chosen spot before filling it with potting soil and plants.
- **Fiberglass:** These containers are durable and can stand freezing weather without breaking. Some of the better ones look strikingly like stones without the weight. The best ones are a bit pricey.

Thinking about alternative choices

More unusual containers can be a lot of fun and add unexpected pleasure or whimsy to your displays. If the item isn't entirely suitable (an odd shape or not conducive to providing good drainage), simply nest a plastic pot inside it and let developing plants hide the actual container from view over time. Check out these options:

- **Hanging baskets:** With a hanging basket (see Figure 19-1), always make sure that you've accounted for drainage and that the resulting display is adequately supported by wires, chain, string, rope, or what have you, because a full hanging basket can be quite heavy. If taking the display down to water it is a hassle, try using a watering wand. Some possibilities include plastic, clay, wood, and coconut- or moss-lined wire rigs.
- **Wall containers:** A wall garden is a clever and often quite charming way to display container-grown plants. You fasten them to a fence, courtyard wall, or other vertical surface (or a trellis against one), preferably at eye level so you can readily appreciate them.

  Many containers intended for this use have one flat side so they can go flush against the wall (these containers are sometimes called a *half pot*); though this feature isn't a requirement, it does look better and allow the plants within to grow upright. Obviously, the supporting wire, brackets, or hooks have to be equal to the job, and that means holding the weight of a *filled* container. Although you can rig something yourself, well-stocked garden-supply stores often have a nice selection of these containers, and they come with whatever support is necessary.

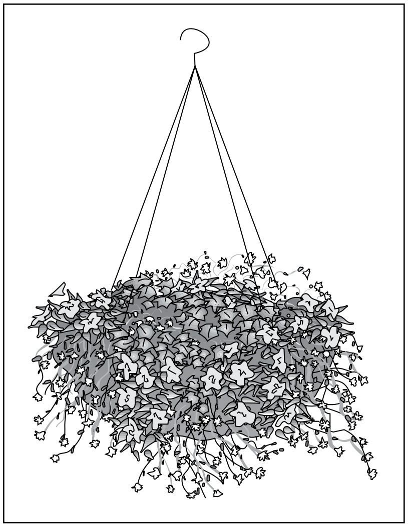

FIGURE 19-1: Typical hanging basket.

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- **Old shoes and boots, tea kettles, wicker baskets, cookie tins, old tires, wagons and wheelbarrows, and more:** You can recycle all sorts of wacky and whimsical objects to hold and display potted plants — just use your imagination! Browse garage sales, thrift shops, junk piles, or even your own garage, basement, or attic. Any vessel of weather-resistant material can be a candidate. Containers that at one time held toxic chemicals like oil barrels should be avoided, also those constructed of wood products that contained harmful preservatives, like creosote.

Getting the Container Soil Right

Because a container-grown plant is confined to its space, its roots can only find nourishment and anchoring in whatever soil you provide. So soil isn't the place to cut corners — take a moment to provide a welcoming environment. The following sections give you info on choosing a potting soil or making your own.

TIP

Don't use regular old garden soil. It's often too heavy or dense, plus it may not drain well in a container setting. When wet, it tends to stay soggy too long — and then it dries into hard mud. It may even contain weed seeds, insect eggs, or disease organisms, unwelcome guests you may not discover until it's too late. No, you definitely want to use those bags you buy at the garden center or home-supply store.

Purchasing a potting mix

A container garden is a good case for store-bought potting mix, which is *not* heavy and dense. It contains and holds nutrients your plants can use, and it drains well. I use "potting mix" instead of "potting soil." That's because most of the materials sold for the purpose of potting plants don't actually contain soil. Rather they're a combination of the following materials:

- **Organic matter:** The *organic matter* in potting mix is typically some or all the following: dried manure, compost, peat moss, and finely ground bark. It adds nutrients to the soil.
- **Perlite:** *Perlite* appears as little crunchy white "pebbles" (they're actually smaller than most pebbles); interestingly, perlite is a natural volcanic ash that's been superheated and fluffed up, like popcorn. This substance increases the flow of air while helping the soil hold water.
- **Vermiculite:** This mineral has been heated and fluffed up, though its form is flat and flaky. It increases airflow, retains moisture, and helps make minerals accessible.
- **Coarse sand:** The sand in soil mixes isn't beach sand, which is too salty, or river sand, which is too fine and smooth. Coarse sand helps with drainage.
- **Moisture-retaining gels:** When they encounter water, these gels swell up and then slowly release it back into the mix over time.
- **Composted bark:** This is most frequently finely ground pine bark that has been composted.
- **Fertilizer beads:** These fertilizer sources usually look like tiny yellow or brownish BBs and are usually a fertilizer that releases gradually over a few months.
- **Coir:** You can use these shredded coconut husks as a substitute for peat moss.
- **A bit of charcoal:** Manufacturers include charcoal mainly to absorb odors and gases from the natural decomposition process of the other ingredients.

Most potted plants are perfectly happy with a general, all-purpose potting mix. You may want to buy a more specialized one if you're growing something with special needs — for instance, potted azaleas like a mix that's more acidic, and cacti, of course, like one that has a higher sand content.

Of course, if you're aware of a certain plant's special requirements, nothing's wrong with buying regular, general potting soil and then mixing in whatever else the plant needs — sand, lime, moisture retaining gels (see the next section), whatever.

TIP

You may see *sterile* potting mix touted on the bags and bins. All the term means is that the mix has been treated to kill possible pests, diseases, and weed seeds. That's a good thing!

REMEMBER

You get what you pay for. Cheap potting mixes seem to have too much peat moss or poorly shredded bark, or they lack perlite or vermiculite. You can't always rip open a bag in the store and shove your hand it to check it out (though some places have a display of samples to help you choose). So read the bag with care — not the claims about how terrific the contents are but rather the list of ingredients and their various percentages.

Whipping up your own mix

Yes, you can create your own mix, but it's not really a matter of saving money, because you have to purchase individual ingredients separately and then mix them. It's certainly not a matter of saving time, either. What it is, my friend, is a matter of control. When you make your own mix, you can make sure every bit of it is of good and consistent quality. Best of all, you can customize. If the store-bought mix seems too heavy, you can easily lighten it by stirring in some more perlite or some finely ground bark. And of course, you can make a blend that's more acidic or more alkaline as need be. The most commonly available bark is composted, hardwood, fir, or pine bark — all are fine to use.

Here, then, are some recipes to follow when stirring up a batch of your own mix:

- **A standard mix (also sometimes called *houseplant thirds* because it's so suitable for the majority of common houseplants):** One part high-grade compost (packaged or your own), one part peat moss, and one part perlite or sharp sand.
- **A light mix, for plants that like good drainage:** Two parts peat moss, one part sharp sand, and one part perlite.
- **A heavy mix, for plants that like their soil more moisture-retentive:** One part peat moss, two parts fine bark or composed bark, and one part sand.
- **Tree and shrub mix:** One part sterilized high quality topsoil, one part peat moss, two parts fine bark, and a one part sand.

TIP

Moisture-retaining *soil polymer gels* are a good idea if your pots dry out really fast, if you're going on vacation, or if you're simply not the sort of person to water diligently. These gels naturally absorb moisture when you water the plant, swell up with it, and then gradually release it to the roots for them to use between waterings. They come in crystal form and should be mixed into the soil prior to planting. Follow package instructions; even a little too much makes your soil mixture erupt, when you first water it, into a sticky mess.

To properly plant a container, follow these steps:

1. **Choose a container as wide and a little deeper than the pot you're taking the plant from to put into the container (refer to Figure 19-2).**

   Mix ample amounts organic material with the soil you remove from the hole.

2. **Knock the plant out of the pot by holding the pot upside-down and tapping its rim on a hard surface or thumping the bottom of the pot with your fist.**

   TIP

   Squeezing the side of the plastic pot also helps. If the plant still won't come out of the pot, break or cut the container. Don't try to pull it out from the top of the plant.

3. **If the roots look like they've wound around the bottom sides of the pot, pry them loose with your fingers or cut through them shallowly (vertically) with a sharp knife.**

4. **Put enough soil in the bottom of the hole to bring the *crown* of the plant (the spot where the roots join the stem, or, if you can't see the roots, the top of the rootball) about even with the surrounding soil surface.**

5. **Fill the soil in and around the rootball, making sure you press it in firmly, to eliminate any air pockets.**

6. **Water the plant deeply with a slow stream of water.**

   If the soil around the rootball settles, fill in the depression with more soil.

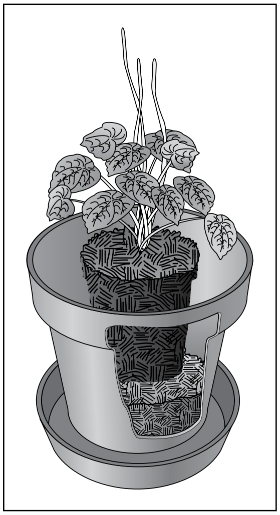

FIGURE 19-2: A cross-section of a container, ready for planting.

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7. **Cover the soil with a layer of mulch (shredded bark, compost, for example).**

   This will keep the soil moist and cool, allowing the plant to become established.

Many gardeners use pebbles in their containers, which aren't really necessary, especially with today's well-draining potting materials and with containers having sufficient drainage holes in the bottom.

Picking Plants for Your Containers

So you're ready to start choosing plants. I know what you're thinking: small ones! Well, of course, but size doesn't have to be a limiting factor. Almost any sort of plant can adapt to life in a container. For instance, you can try a small herb plant or a wee bonsai-size Japanese maple in a small ceramic pot; or you can grow a wide array of herbs or flowers (or both! why not?) or a dwarf edition of any number of popular trees in a big planter box or tub. Look through Part 2 for ideas of various plants you can try in containers. You can even grow bulbs in containers — forcing bulbs indoors is a popular practice among container gardeners.

A container display looks best and serves its residents best when plant and pot are in proportion to one another. You don't want a little plant to get lost in a big pot, nor is it practical or attractive to allow a larger plant to teeter in or look top-heavy in a too-small pot. Plus, the roots need to fit without being crammed in there. So make a match. (Think ahead to a plant's potential size, not the youngster you first install.)

Consider what you want your display to do for you. Then read on for some advice on how to pull it off.

Up close and personal displays

If you like to have potted plants where you're nose-to-nose with them almost daily, such as on a deck or patio (or indoors for that matter), choose plants with interesting details. I'm talking pretty or very colorful flowers, fragrant flowers, fragrant foliage, unusually shaped or colored leaves, or edible parts. Avoid plants that attract bees, that don't smell too good, that have prickers or thorns, or that have rambling, unruly growth habits, like Japanese barberry.

DESIGNING YOUR CONTAINER COMPONENTS WITH THRILLER, FILLER, AND SPILLER

The process of putting together plants combinations can be a bit intimidating, but it really doesn't need to be. Some of the most successful container combinations include these three components:

- **Thriller:** A *thriller* is your central focal point plant and frequently adds height to the design. The plant is usually the most dramatic.
- **Filler:** A *filler* is usually a plant that adds some mass or body to the plant arrangement.
- **Spiller:** A *spiller* is the weeping or cascading plant that hangs over the edge of the pot. You can use this same concept for flower arrangements.

TIP

If you're placing a container on a deck or patio, add pieces of molded baked clay or pot feet underneath the container to allow it to drain and for the surface underneath the container to dry and prevent rotting or discoloration of the surface of the deck or patio. Figure 19-3 shows how potted feet can provide drainage for the container and protection for the surface in which it's placed.

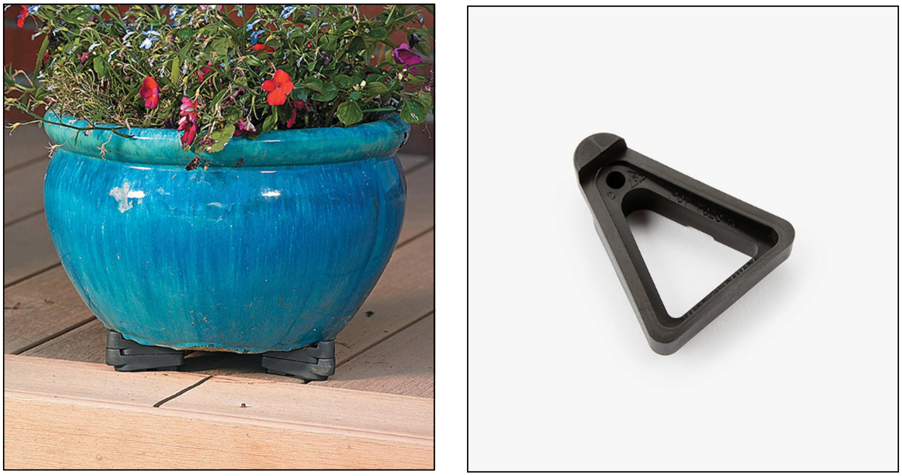

FIGURE 19-3: Pot feet provide drainage and protection for the surface below the pot.

Photo courtesy of Lee Valley Tools

REMEMBER

Many container gardens exist indoors or in shady areas like porches and patios. If you want your close-up container garden to look its best in a shady location, be sure to pick out plants that grow well in shade. See Figure 19-4 for an example of a container garden with caladiums, dark sweet potato vines, and coleus, which make quite a dramatic trio.

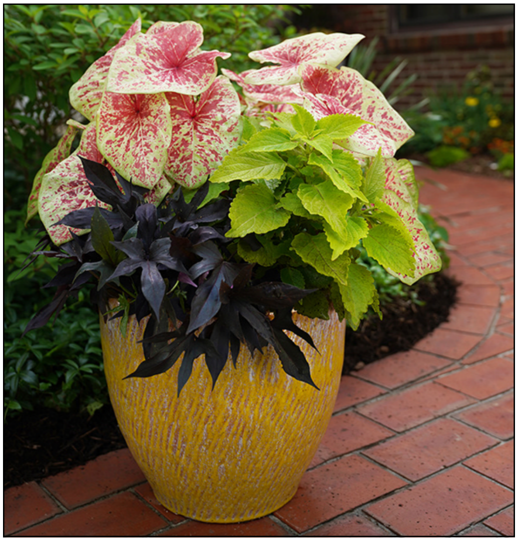

FIGURE 19-4: A planting for the shade can be just as full and vibrant as one for the sun.

Photo courtesy of Proven Winners

Tucked in attention-grabbers

For pots that you strategically position to draw interest to their part of the yard or their companions, you want lush, dramatic leaves, big flowers, and attention-grabbing colors — anything that causes you and your garden visitors to trot over for a visit and a closer look. So avoid plants with fine or wispy textured leaves and stems, ones with small or fleeting flowers, and ones with dark colors (which recede into the shadows).

Containers of mixed company

No rule says a container should hold only a single plant, so feel free to tuck in several types, in effect making a mini garden. Remember, when planting, don't crowd — the plants will fill in and grow upward and outward, and you want the show to last a while and not require constant editing (in other words, you want to avoid a lot pruning, trimming, even the necessity of taking out an entire plant that's too jammed). Here are a few guidelines to get you started:

- Combine plants of similar needs.
- Include both foliage and flowering plants.
- Combine herbs like thyme that don't have significant flowers with others that have showier flowers like annual tailing lobelia.
- Include plants of different forms: spiky or strappy-leaved, rounded or mounded, and low and trailing. This sort of variety works well in the regular garden and translates easily to container compositions, just on a smaller scale.
- Position taller plants in the middle (or to the back if you plan to display the container against a vertical surface so people can't view the plants from behind); put shorter plants at the taller plants' feet.
- Place plants with trailing or cascading stems at the very edge so they can get where they want to go unimpeded.

Mixing colors in a containerized display is an art, and when done well, it makes a wonderful impression — something you're really proud of and delighted with. Remember, the color can come from foliage as well as flowers, and often the colorful foliage delivers a longer-lasting show. Here are some color combinations you can try:

- **Bold, primary colors:** Mix one or two plants each of blue, yellow, and red. Look for ones of similar strength or intensity.
- **Compatible combos:** Colors that fall between the primary colors (called *secondary colors*) tend to be harmonious companions. Try yellow-orange with violet-blue or red-orange with blue-green.
- **Pastel hues:** Stick to selections of softer hues (pink, pale yellow, soft blue, light purple, cream rather than white, and so on). If you're including foliage plants, complement with gentler ones such as those with gray, silver, or sage-green leaves.
- **Single-color shows:** Combine several different plants that share the same flower color. Sure, you may end up with slight variations in tone, but you actually want that; doing so makes a more diverse and interesting display (firm matches or all the same plant can end up looking like a dense color blob).

- **Opposites attract:** Contrasting colors always look fabulous together, particularly if they're of similar strength or intensity. Try blue with orange or purple with yellow.
- **Color boosts:** Favor one hue, say, purple, and then tuck in a close-by hue for subtle contrast, such as a blue companion. Try an all-red show with a dash of orange or yellow, or an all-pink display with a jolt of red, and so on — you get the idea!
- **An all-foliage display:** Green is a color, too! If you're putting a pot in a shady spot, consider filling it with a variety of leafy plants of different forms and slightly different shades of green. This setup makes for great texture and complexity.

REMEMBER

Gardeners grow plenty of plants mainly for their colorful or patterned leaves. Examples include cannas, caladiums, coleus, ferns, hostas, ornamental grasses, and all sorts of houseplants, just to name a few.

Arranging Containers for a Container Garden

Just because plants are in different pots doesn't mean they can't be neighbors. Setting up containers in small or large gatherings has practical advantages:

- You're more likely to remember them and water and fertilize them at the same time, keeping the entire display looking good.
- Groups also tend to raise the plants' local humidity and to moderate the effects of hot sun, which can be a good thing, depending on what you're growing.

Groupings can also be wonderfully attractive and appealing if artfully arranged. I give you a few suggestions, but make sure you also experiment and vary the show from time to time. That's one of the many beauties of raising plants in containers — you can cycle plants in at out of the show as you see fit (taking away something that's struggling or no longer blooming, for example, and replacing it with something similar or completely different).

Here are some container grouping ideas:

- **Group various-sized containers.** Put tall containers to the back, shorter ones at their feet so you don't block any one display from view. Try not to group containers of widely varying sizes, though — tiny pots at the feet of big tubs just go unnoticed. Mix and match complementary pot colors, materials, and forms until you get a look that pleases you. Or create a gathering of all the same type of pot but with a variety of sizes, forms, and contents (plants).

- **Display containers on a tiered stand.** Tiered stands are practical because ideally, they allow room for each pot of plants to distinguish itself from its fellows; they also permit good air circulation. Keep the entire thing as sturdy as possible by leaning or even securing it to a wall or other backdrop support, if warranted. Don't put heavy or top-heavy plants on upper or rickety shelves — instead, set these containers lower down and reserve the narrow and upper shelves for smaller containers. For a more interesting look, intermix types: Don't put all only-foliage plants together and all flowering ones on a separate shelf.
- **Tuck in non-plant extras.** Some gardeners have a lot of fun boosting the interest, whimsy, and/or colorfulness of potted plants by adding some decor. These accents can be anything from a small ceramic turtle or bird, to a whirligig, to a decorative birdhouse on a stick or even a faux flower.

Taking Care of Your Container Plants

Container plants require the same care as plants in a yard garden or flower bed, with one important difference: Any plant growing in a container can't do what regular, in-ground plants do, which is rely on a boost from rainfall, send roots off far or deep in search of moisture, and/or derive what they need from a wider area. When you live in a pot, it's a small world after all. The following sections address some important reminders when caring for your container plants.

Tending to the most vulnerable plants

Container-grown plants that endure drastic cycles where they dry out and then get drenched are generally unhappy customers. The extremes stress out the plants. And of course, if you rush in to rehydrate a plant wilting in distress and you're too late, it drops all its leaves, swoons, and dies. Be consistent! The most vulnerable container plants are

- **Newly potted or exposed plants:** These babies need the help of regular water to establish themselves, to send their roots out into their new home, to get their legs under them. Plants grown in full sun or windy, exposed locations, are vulnerable, too, because they dry out so fast.

- **Plants grown in dark-colored pots:** Dark colors absorb more heat. Plants in light-colored containers have a slightly easier time of it because the pot reflects light and therefore heat.
- **Plants with large, thin leaves:** Plants whose leaves have a lot of surface area really rely on water to remain hydrated and plump as can be. Plants with small leaves, succulent leaves, or needle-like foliage are better able to cope with dry times.
- **Plants in lighter soil mixes:** Light soil mixes drain moisture away faster.
- **Plants that are root-bound:** Plants whose roots take up most of the pot don't have enough soil to hold moisture for them to use as needed, and they should be transplanted. To know when to transplant — turn the container upside down and knock the plant out of the container by thumping the bottom. Examine the roots. If the roots have hit the outside of the pot and are starting to mat together, it's is a good time to transplant. Don't wait until the roots start to circle the inside of the pot. Another telltale sign: Roots shooting up at the surface or out the bottom of the pot.

Gauging your garden's water needs

The top inch or so of the soil mix in any given pot is sure to dry out faster than the rest below, which is especially true for plastic or other nonporous containers. So don't trust your eyes to tell you whether the pot is thirsty; plunge in your thumb or a finger to a depth of at least 1 to as much as 3 inches to find out whether there's moisture at that level before concluding that the mix is dangerously dry. (Okay, you can also buy a product called a *moisture meter* and insert its long, needlelike probe into your pots to get a fairly accurate reading. If you like gadgets, go for it. But keep in mind that you're sacrificing a prime opportunity to play in the dirt.)

WARNING

Watch for drooping or wilting, or a tired or off-color overall look to the plants. Also, if you can pick up the container, you may notice that it feels too light.

To water your plants properly, you have a variety of options:

- Use whatever's convenient for you and for the potted plants.
- Look into using the hose, with a hand attachment to deliver the water more softly; a watering can, ideally with a long neck and with or without a water shower attachment (called a *rose*); drip emitters; or a plastic watering tube inserted into the middle of the container.
- In some cases, you can consider bottom-watering. *Bottom-watering* (setting the pot on a saucer or tray of water and letting it soak up what it needs from below) works quite well. You may want to invest in a self-watering pot.

REMEMBER

No matter how you water, be gentle but thorough. A jolt or direct hit can splash soil out of the pot and maybe even dislodge your plants. Also, sloppy watering tends to wet plant foliage, which is wasteful and can lead to fungal diseases.

TIP

Here are a few moisture-conserving tricks for plants that dry out too fast:

- Spread a very thin mulch on the surface of the potting mix.
- Move pots into the shade for part of the day.
- Sink a pot partially or fully into the ground in your garden.
- Nest a small potted plant in a larger container. Add sphagnum moss to the space between the larger and smaller pot. The moss will hold moisture and provide a bit of cooling.
- Yank out any weeds that appear in your containers — weeds are notorious water pigs!

Many tropical plants, tropical houseplants, and large-leaved plants appreciate a little extra humidity; a little more than what's available naturally in the air. Here are a few good ways to help them:

- Set their pot on a tray or dish of pebbles, where excess water from above can stay and gradually evaporate, which effectively raises the local humidity. Do make sure the bottom of the pot stays above the water level in the pebbles or the soil in the pot will get waterlogged.
- Get in the habit of misting such plants regularly. In fact, keeping a water-filled mister right nearby is a good way to remind yourself to do this.
- Clustering or grouping such plants is always a fine idea — there's strength in numbers. The close proximity encourages a damper microclimate and reduces sunlight on the sides of the pots, because some of them will block, or partially block, one another. (Plus, keeping them in a group can look quite splendid.)

Fertilizing your container plants

Life in a pot is finite. A newly potted plant may be able to subsist on the nutrition inherent in the potting mix. But after a time, that food source becomes depleted. You can repot, of course, but it may be easier simply to get in the habit of feeding your potted plants regularly.

Potted plants grown for their flowers or fruit especially benefit from fertilizer, because producing these things requires so much energy.

How often you fertilize depends on the plant and the pot size and all that. However, the rule for the garden at large still applies: Feed at the start of the growing season to get the plants off to a roaring start, feed at regular intervals during the height of the growing season, and start slowing down and stopping in the fall when the show is over.

REMEMBER

Fertilizer leaches out or washes away with every watering, so you need to keep it up. Also, the limited amount of soil in a pot limits the amount of nutrients it can hoard and supply to the plants.

Unless you're growing something fussy or offbeat, or something with special requirements, a general all-purpose garden fertilizer is perfectly fine for almost all potted plants. It comes in different forms, so experiment to discover what you and your plants prefer. Options include

- Liquid fertilizers
- Dry or granular fertilizers
- Fertilizer beads
- Fertilizer sticks

Chapter 4 discusses fertilizer in greater detail. Whatever kind you decide, always follow the label directions on how and when to apply to the letter — like aspirin, more is not better!

IN THIS CHAPTER

- » **Deciding what kind of water garden you want**
- » **Choosing supplies**
- » **Adding some greenery**
- » **Working with fish ponds**
- » **Keeping your water garden in good shape**

Chapter 20

Taking the Plunge: Gardening with Ponds and Fish

Water doesn't just add life to a garden; it also adds atmosphere. Whether you're talking about a barrel or a tub with a few plants or an in-ground pond, gardeners often cite water features as the elements that complete a garden.

Water brings magic. Maybe it's the reflections of passing clouds; maybe it's the soothing sound of a trickling or splashing fountain; maybe it's your gasp of awe when your first waterlily blossom bursts open; maybe it's a child's excited shout when a dragonfly or small frog visits. The magic is all this and more. Read this chapter and take the plunge, because — good news — water gardening is easier and more affordable than ever before.

Planning Your Water Garden

The main thing you need to know about planning a water garden is that almost all the effort and expense is at the outset. After a water garden, large or small, is up and running, it's surprisingly easy to maintain. You have to ensure that the important needs of the plants and the fish are already met before you even acquire them, and you do that through careful planning. The following sections run you through some planning considerations.

REMEMBER

Your pond's size, the elements you add, and other factors can affect cost and maintenance. Make sure your take a realistic look at your budget and the time you're willing to invest in your water garden. "Picking Out Your Water Garden Parts and Supplies" gives some details on cost. For information on upkeep, see the section, "Maintaining Your Water Garden," later in this chapter. And if you need basic planning advice, including tips on defining what you want, gathering ideas, and putting the plan in action, flip to Chapter 2.

Looking at location

You can find the answer to many of your questions about garden type when you know *where* you want your garden to be, and that's why picking a good spot should now be the first order of business. Even before you go shopping, you need to evaluate the area where you'd like to put a water garden and determine its basic requirements:

- **Sunlight:** Most water garden plants adore full sun and bloom with gusto as a result — specifically, 6 or more hours per day is great. Any spot where you can put a sunny flower bed or a vegetable garden can also host a water garden.
- **Openness of the area:** You want ample elbow room, not just so the plants have the space they need but also to allow access and room to appreciate. Perhaps you want to put in a bench or dining set nearby. Sufficient air circulation is also good for the health of the plants and any fish.
- **Current large vegetation:** Trees and shrubs interfere with roots, and these big plants shed leaves, twigs, petals, and fruit from above, which are a mess to clean up from your pond and can encourage algae to grow. Avoid putting your water garden under or too close to trees and shrubs.
- **Levelness of the land:** Levelness is important because water always responds to gravity and you don't want runoff or spillovers. Granted, few spots are *perfectly* level, but you can always make the necessary minor adjustments during installation.

- **Location of utility lines:** Digging into power lines, gas lines, fiber optic cables, phone lines, pipes, and other such things can be expensive and incredibly unpleasant. Call your utility companies to have these lines marked — most do so for free. Also, consider the location of your power outlets before planning to use a pump.
- **Available room:** If you aren't sure you want a large water garden, start small, even if you have room for more; just set up one or more container displays. However, if you have the space and the dream of a big, beautiful pool of water, find or create a good spot in your yard and go for it. Realize that you are unlikely to "do over"; install a pond that's as big as or slightly bigger than you want. (Heed the famous words of the landscape contractor who remarked, "None of my clients ever complained that their water garden was too big!") A water garden appears to shrink in size when filled with water and plants. Make sure you have enough room for the kind of water garden you want.
- **Desire for fish:** Not all water gardens have fish or are even appropriate for fish. If you're planning on having fish, go to your fish or garden center that sells them to find out what conditions are.

REMEMBER

For overwintering fish in cold climates, it's a good idea to have someplace in the pond that it is at least three feet deep so the water won't freeze all the way to the bottom of the pond. If you are concerned about this, you can also add a floating de-icer heater especially developed for this purpose. See your local pond supplier for details.

WARNING

Placing a pond or water garden in a low-lying poorly drained soggy area may seem the logical place for it. Unfortunately, that's one of the worst choices because you'll have no control over how much water enters the garden or pool, and it quickly can become a quagmire of mud. If you have such a place, consider planting a bog garden with plants that love this is type of habitat. Check out the section, "So-called marginal plants," later in this chapter.

Instead of having an elaborate water garden, you can certainly put a small tubbed display or little pool with running fountain in a shady nook. Just heed all the rest of the requirements I describe in the preceding list, and if you add plants, don't expect flowers; pick plants based on their handsome foliage.

WARNING

A child or pet can drown even in a few inches of water. You never want to risk that. For this reason, some municipalities don't allow water gardens (particularly in-ground ponds) in front yards. But front yard or backyard, a water garden should be watched, so site it where you can see it from elsewhere in the yard and also ideally from a window inside the house. Caution children and supervise them. Erect an encircling low or high fence (with a gate, of course) if required or warranted — better safe than sorry. Poolside edgings, judiciously placed, can also restrict or inhibit access — I mean hardscape edgings like rocks, as well as lush plants. Adjacent seating can even help as it provides a safe and relaxing viewing opportunity.

Aboveground or in-ground gardens?

If you know where you want your water garden, you can begin to explore the physical form that your garden will take. Water gardens generally are either above ground in a container of some sort or set into the ground as a pond. Read on for some points to consider when deciding which type to go with.

Aboveground water gardens

Consider where you've decided to locate your pond. Aboveground water gardens are a commanding presence in a landscape. For this reason, gardeners generally site them where people can enjoy them up close, such as on a patio or deck, or next to one, or against a wall or fence where blocking things from view or obstructing foot traffic isn't an issue. Figure 20-1 shows a typical container, or aboveground, water garden.

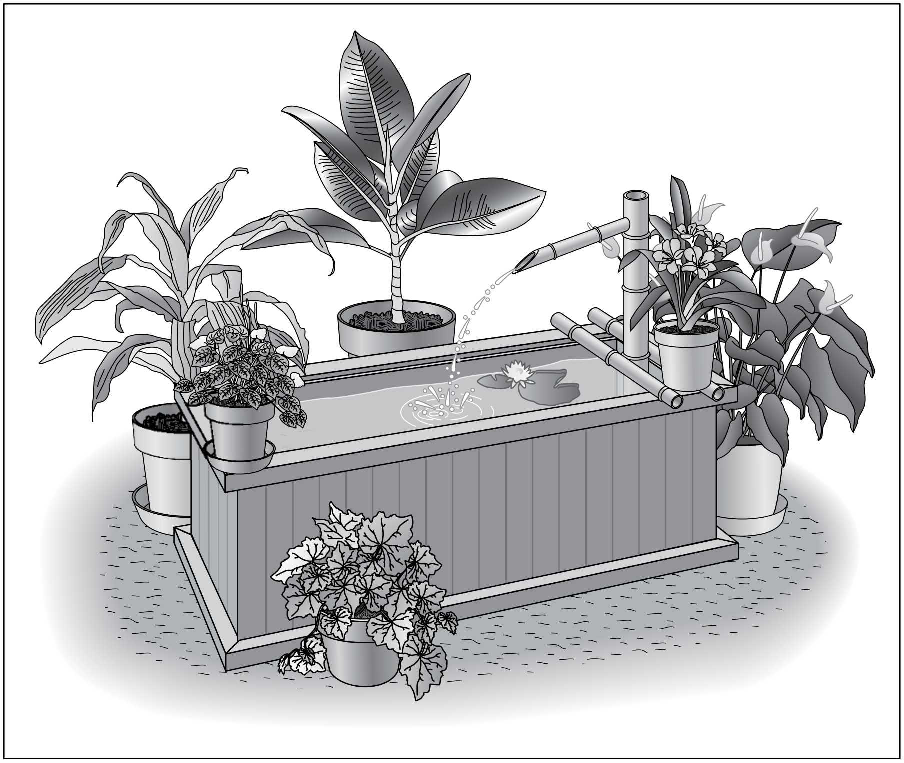

FIGURE 20-1: An aboveground water garden, ideal for porches, patios, and balconies.

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Aboveground displays involve an important practical concern, too. They're substantial and heavy. You want to make sure that you can find a container, tub, or liner that can support the weight of the water without buckling or bursting. One way around this is to erect a support around it, insulated if you like. Use stones, bricks, or timber.

Last but not least, a broad lip or edge allows you to sit beside the display, to admire and care for the fish and plants within. Aboveground tubs and water gardens, therefore, are a good choice for anyone who can't or prefers not to do a lot of bending and stooping.

In-ground water gardens

In-ground water gardens, of course, look more natural and thus are the best choice when you want to integrate a water garden into a lawn or garden. After the liner of your choice (refer to the next section) is in the ground, you can attractively edge it in stone or brick and some landscaping (picture some lush hosta or irises, or even simply some drooping ferns). Cover the edge of your liner well — otherwise, the edging looks far from natural — to create an enchanting garden focal point or destination, and it can look like it's always been there! Figure 20-2 shows an in-ground water garden.

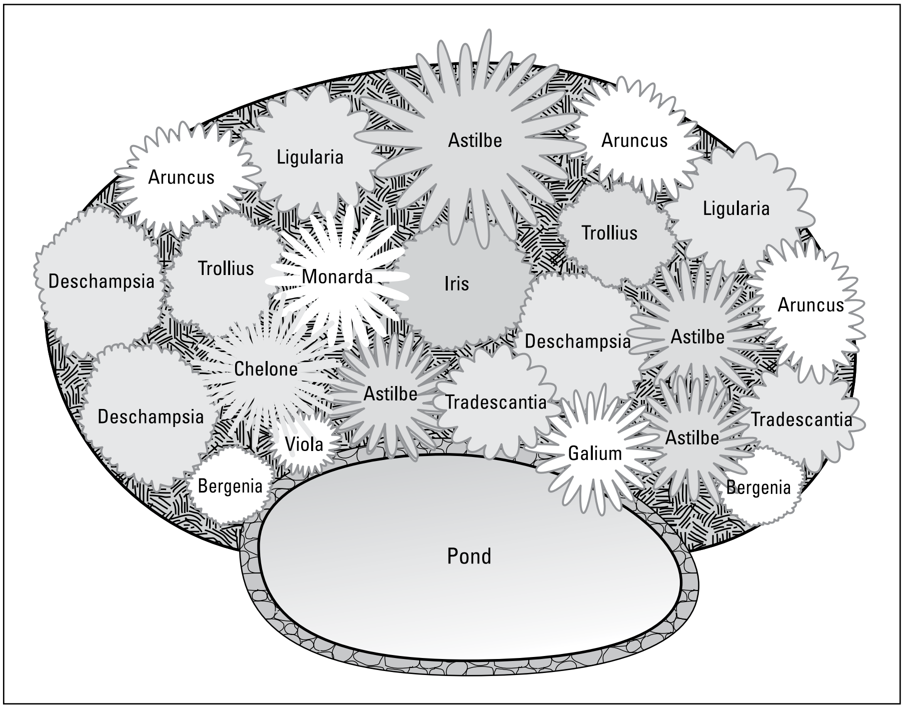
Astilbe
Aruncus
Ligularia
Aruncus
Ligularia
Trollius
Deschampsia
Trollius
Monarda
Iris
Aruncus
Deschampsia
Astilbe
Chelone
Astilbe
Tradescantia
Deschampsia
Viola
Galium
Astilbe
Tradescantia
Bergenia
Bergenia
Pond

FIGURE 20-2: A garden plan featuring a planted backdrop for an in-ground pond.

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In addition to accommodating the site issues I describe in the section, "Looking at location," earlier in this chapter, you also must deal with the issue of potential runoff or seepage of water and dirt (or mud!). An in-ground pond should never be flush with the surrounding terrain. Here are two ways to handle this issue:

- **Allow for a raised lip.** Seat the lip an inch or more above the ground. Don't worry about its looking unnatural; edging materials and pondside landscaping can hide the edge from view.
- **Grade away from the pond's edges.** This grade encourages runoff to travel away rather than into your display. If your site has a slight slope to it, a berm or retaining wall may be necessary, and a drainage trench on the uphill side is wise. Creating planting ledges within your pond, as shown in Figure 20-3, can also help.

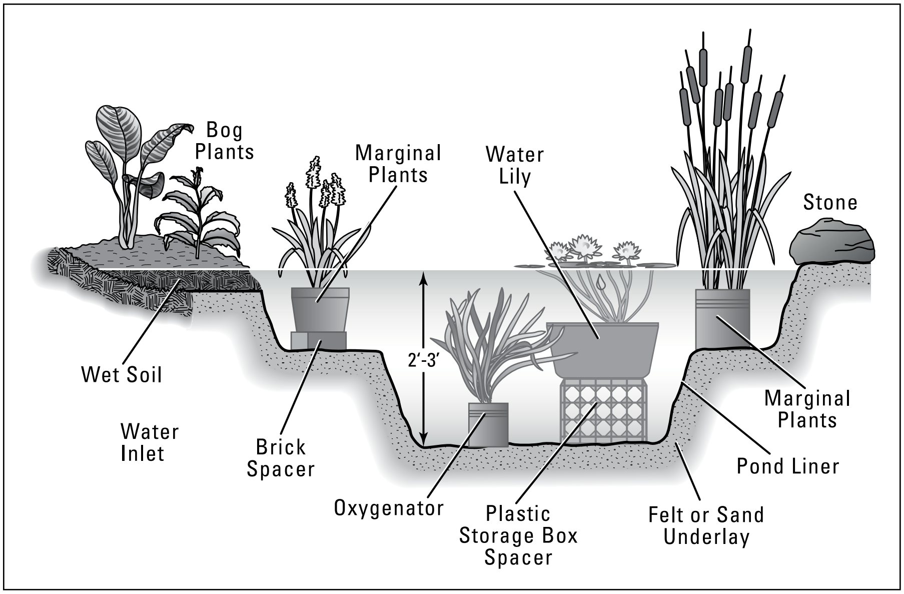
Bog Plants
Marginal Plants
Water Lily
Stone
Wet Soil
2′-3′
Marginal Plants
Water Inlet
Brick Spacer
Pond Liner
Oxygenator
Plastic Storage Box Spacer
Felt or Sand Underlay

FIGURE 20-3: A cross-section of a pond plan showing ground pool critical depths and planting ledges.

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Choosing the best lining

When you know the type of water garden you want, you have to take the garden's lining into consideration. Most soil is porous, so without a waterproof liner the water will eventually leak out. Also, water gardens being what they are, leakage can be a serious problem if you don't line them properly. Liners generally consist of two types — flexible liners and hard shells:

- **Flexible liners:** By this term, I mean the big sheet that you lay into a hole and trim to fit. It's a special, durable kind of rubber, usually butyl rubber or a material called EPDM (that stands for ethylene propylene diene monomer — personally, I'd just stick with the acronym). The advantage is that the size and shape of the pond is *your* choice. It's also easier to conceal the edges from view because they're not rigid. PVC and polyvinyl materials are also used although I've had good luck with EPDM so I stick with this material. Foot for foot, medium and large ponds lined with this material are cheaper than pre-formed. If you have a pond of any size, you may be surprised how heavy this material can be so have some fellow gardeners on hand to help. Make sure you install it with correct underlayment material.

  WARNING

  Stay away from cheap plastic liners! They don't last long and will soon become brittle and leak. That's the last thing you need after you've spent all this time and money creating your water feature. Finding a leak because of cheap inadequate lining is a nightmare. Buy the best 45 millimeter EPDM, which has a life expectancy of about 40 years. The quality of your pond lining material is the last place you want to skimp.

- **Hard shell liners**: These black pond liners come in a variety of shapes and sizes. The most popular shape is a simple kidney, but you can get an amoeba, a muffin, and many others. Some hard shell liners come with side shelves; some offer the option of a spillway slot so you can connect two ponds or add a stream or waterfall to your display. In any event, the standard depth is 18 inches; some of the big ones are deeper. These liners are convenient, but they're more expensive, square foot wise, and are significantly limiting for design, shape, and depth of your garden. The larger ones are also quite a job to transport.

Picking Out Your Parts and Supplies

Unless you're especially handy, buying and installing some of the stuff you want for your water garden can be daunting. But you *still* want or need the stuff, right? No problem! Start by getting some good advice. Talk with a specialist or landscaper who installs water features, or call a mail-order supplier, and discuss your options. Their expertise can be invaluable. Even if you end up hiring someone to help you, you should still be an educated consumer.

As with any form of gardening, the cheapest road toward installing your water garden is to do all of it yourself, and many home and garden centers now stock everything you need to bring your garden plans to life. If you don't have a water-garden supplier near you, numerous mail-order houses can help and offer impressive, wide-ranging selections to boot.

REMEMBER

Going with the cheapest versions of things isn't always wise — you get what you pay for. Buy supplies for your water garden from a reputable source and be sure you understand the return, refund, or replacement policy, just in case.

Identifying what you need (and don't)

Here's a list of what you're most likely to need and their probable cost:

- **The pool itself:** The container or liner is probably your biggest expense. Tubs and other suitable smaller containers range from about $30 up to $100; special plastic liners (or enough of the special, puncture-resistant sheeting to make your own shape) can run be as low as $15 for something that'll fit in a half whiskey barrel to as high as hundreds of dollars for a substantial, shaped, in-ground form. If you haven't yet decided what kind of pond you want, review the previous sections.
- **The inner workings — pipes, tubes, valves, filters, fountains, fittings, pads, screens, holding tubs, and more:** The choices for equipment are mind-numbing! These interlocking and sometimes complex pieces of hardware are part of the show behind the scenes. Don't rush this process. Take your time to figure out what you need. To do so, take careful measurements to determine the volume of water your pond or pool will hold. You can use various calculators you can find online. Carefully calculating the flow rates you need can help you figure out what size pumps and filters you need. Calculating everything can be tricky if your water feature is irregularly shaped (which most are), but do the best you can and overestimate if you aren't sure. Vendors can help you with the details. Seek a knowledgeable specialist — someone who is an expert — and not someone or some place that does this work on the side.

  When all is said and done — that is, when these fixtures are installed and doing their job — your job becomes two-fold: Keep them clean and in good repair, and hide these manmade items from sight behind or below lush plants or rocks so the natural look prevails. I cover some of these items in more detail later in the chapter.

  WARNING

  Water and electricity can be a dicey combination. And yet, you often need to have items that run on electricity associated with your display, such as a pump-driven fountain or waterfall, a filter, or atmospheric lighting. My main advice to you on this issue is three-fold:

  - **Hire help.** Unless you're a licensed electrician, don't mess with installing and hooking up wiring around a water feature. Get it done right by someone experienced. This person can also help you with hiding the lines from view.

  - **Make sure you use GFCIs (ground filter current interrupters) or GFIs (ground fault interrupters).** They're a must on every electrical item associated with a water garden. This extension-cord style device automatically and instantly shuts off power when it detects a leak in the electrical current (thus preventing shock).
  - **Verify all the equipment and items you use with your water garden are ones intended to be used around water.** The last thing you want is a short or for someone to be electrocuted.

- **Edging material (brick, rocks, flagstone, wood, whatever):** These items are purely gardener's choice, and the cost and amount needed depend entirely on your plans.
- **Plants:** Waterlilies and lotus can run from about $25 up to $50 or more, per plant. Other water plants, from irises to canna to floating heart to underwater/oxygenating plants, are often much less. See the section, "Choosing Plants for Water Gardens," later in the chapter for more information. As for pondside landscaping, it varies depending on your taste and the style of the display.
- **Fish:** Goldfish and their near relatives are pretty cheap. And don't forget the filter and the fish food they'll need. Again, I cover fish in more detail later in the chapter in "Adding Goldfish to Your Water Garden."

  REMEMBER

  Before you commit yourself to adding fish, get your water garden set up *first;* then do your research into the types and number of fish your water garden can support — it may be less than you think (note that fish overcrowding is bad for fish health as well as water quality).

Here are a couple things you *don't* need to buy for your water garden:

- **Potting soil:** It's a water-gardening no-no (it's too light, so it floats away). Use heavy garden soil from your own yard. For more details on planting water plants, consult the section, "Choosing Plants for Water Gardens," later in this chapter.
- **Creatures:** If you build it, they will come! Aside from fish, your display may support dragonflies, frogs, turtles, and birds. Some are obviously welcome; others, such as mosquitoes in still water, turn out to be pests.

Pumps

A pump's job is to recirculate water in your water garden or to power a filter, fountain, stream, or waterfall. Make sure the equipment is a match for the job, or you'll burn out the motor or not have enough power to do the job — again, seek expert advice. Estimate the pump's capabilities conservatively; your pump can manage the job without maxing out. Pumps are essential to produce waterfalls, are useful to circulate water, and thus oxygenate the water for the fish. If you don't have any fish or water features, you don't need a pump.

REMEMBER

Always oversize your pump. For example, if you figure you need one that pumps 300 gallons per hour (GPH), buy one with double this rating because pumps only pump water at the listed rate under optimum conditions. You can always reduce the speed of the water flow with valves, but you can't increase the flow rate. No matter what, don't skimp on any pump you use. Pumps are the heart of your filtration system; if they fail, everything fails. Buy a known brand so you can get replacement parts like broken impellers.

Packages, catalogs, and website descriptions can give you performance charts if you want to study them. The basic gist is how many gallons per hour they can handle. *Head* or *lift* refers to the various heights above the pump that it can raise water. Just remember that one cubic foot in your pond holds 7.48 gallons of water. Here are two types of pumps for water gardens:

- **Submersible:** These sorts of pumps are sunken out of sight in the bottom of a water garden (or raised up a bit on a cinder block or other support while still underwater), quietly keeping the water moving. These pumps are fine for small to medium ponds. Some water gardeners stash them in a mesh laundry basket, which makes hauling them out, when necessary, a bit easier. For most applications, these types of pumps are your answer. They're generally less expensive, quieter, and more economical to run than the external pumps.
- **External:** Site this larger, noisier pump close to your pond (hide it behind a plant or other barrier). It can power big jobs — large water gardens, a series of ponds, or displays that include a stream or waterfall.

Bubblers and fountains

For many people, a fountain or a bubbler is essential for a water garden. A small, submerged pump circulates water up through plastic tubing into the fountain or bubbler, which returns it to a catch basin. From there, the water is routed and pumped back up through the tubing.

A fountain, of course, sprays water up into the air, whereas bubblers cause water to simply gurgle out, not spray up. Bubblers create a sound like a stream and don't generally need as powerful of a pump as fountains require because the water is not lifted as high. Water-garden suppliers, home and garden centers, and mail-order suppliers offer an amazing array of choices. For perhaps more stylish or customized fountains, search on the Internet or prowl arts and crafts shows. The pump and tubing generally come with it, so you don't have to bother with power and capacity calculations.

For fountains, height and shape (from a gentle, misty fan to a towering spurt) is determined not only by the power of the pump but also by the nozzle on the fountain's head. Often the same fountain can be fitted with a variety of nozzles, so examine your options carefully.

Filters

Next to the pump, the filter is the most important component of your pond setup, especially if you have fish. Using mesh or foam screens, a mechanical filter traps algae and larger pond debris, thus keeping your pond water cleaner. Not surprisingly, you have to rinse it out often and replace it periodically. A pump attached to a filter protects the pump and keeps the water moving through: dirty in, cleaner out. Match your filter to your water garden (or run the risk of ruining the pump by burning it out — or at least causing yourself too-frequent rinsings). If your water has a lot of algae and fine particles, you don't want a real fine mesh, obviously.

REMEMBER

As with the pump, oversize your filter. Getting one twice the recommended size generally doesn't cost more, and with the larger size you get greater efficiency and longer times between cleaning.

Biological filters are larger, more expensive, pondside contraptions, that are an important component for pools with lots of fish or large fish such as koi. The water is cleansed with gravel and beneficial bacteria; fish waste is converted from harmful ammonia into nitrites and then eventually to harmless nitrates, boosting water health for the fish and the plants. See Figure 20-4.

WARNING

Sand-filled swimming pool filters aren't a good choice for filtering a pond. They aren't equipped to handle the particulate load the water garden or pond will have. If they're used, they'll quickly plug up and must be frequently backflushed.

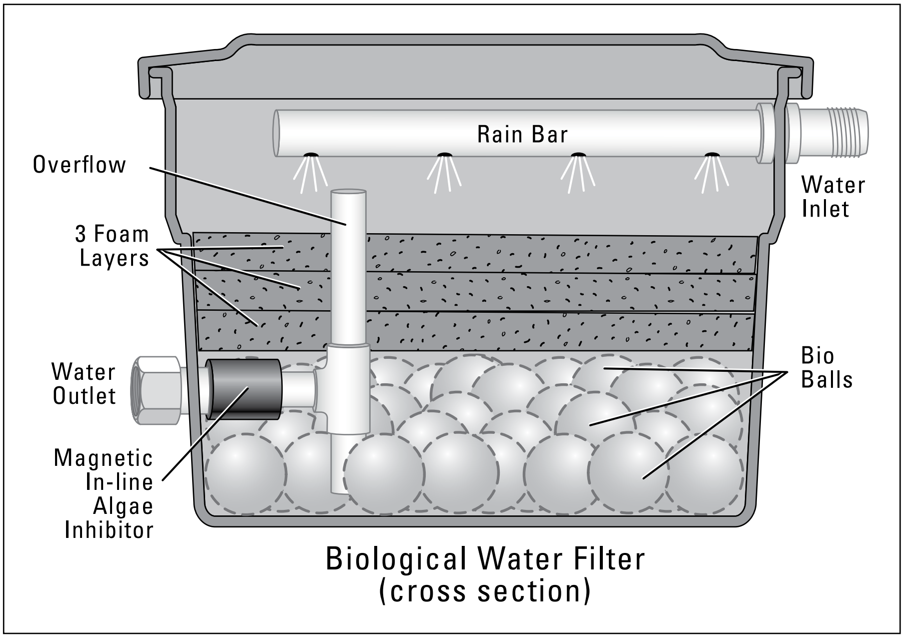
Rain Bar
Overflow
Water Inlet
3 Foam Layers
Water Outlet
Bio Balls
Magnetic In-line Algae Inhibitor
Biological Water Filter (cross section)

FIGURE 20-4: Make sure you properly layer the elements in biological filter so it will work properly.

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Installing and Filling Your Pond

Take these steps when building a simple pond without all the bells and whistles of bottom drains and fancy filtration systems. If you want these items, I suggest talking with a water garden or pond specialist, or a contractor:

1. **Before digging your pond, have a plan where you're going to put the soil you remove.**

   You can add it to raised beds in your vegetable garden or use it to add height to a waterfall you want to have on one of the end of your pond.

2. **Dig with whatever shovel you're comfortable**.

   A long-handled one is easier on your back. If the job is a larger one, you may consider hiring a contractor with a backhoe to do the heavy work.

3. **After the pond has been dug (and earthen shelves have been left for your water plants), put down a layer of about two inches of sand.**

   Doing so serves as protection for the liner from rocks or roots that might be jutting up. You can add an underlayment material that further protects and cushions the liner.

4. **Lay down the liner.**

   You may need a few people to help you with this step because liners of any size are quite heavy.

5. **Secure the edges of the liner with rock or brick and begin filling it with a hose.**

   If the pond is large, you may have to call a company that specializes in providing large quantities of water for swimming pools.

6. **After the pond is filled, you can trim of the excess liner with a sharp knife.**

   Use flat stones to create an edge or coping around the pond.

7. **Let the water settle for few days and then put in your plants.**

   Try not to step into the pond, but if you have to, do it wearing only socks on your feet, so you don't damage the liner.

Choosing Plants for Water Gardens

Stocking a pond is such fun. Water plants, especially the ones that bloom, are so gorgeous. They're not at all hard to grow, and you can purchase many of them from retail or mail-order garden suppliers. When your water garden is set up, their main need — water — is already fulfilled. Before start looking for water plants, here are a few tips for success:

- Always keep water plants in pots while they're in your water garden (except for floaters). This move controls their growth and makes maintenance easier. If you use tap water and plan to add fish, wait 48 hours before adding the fish, to allow chlorine in the water to dissipate. The chlorine won't hurt your plants.
- Use heavy garden soil in your water garden, never bagged potting soil mix, which is far too light and drifts off to make a mess. To keep the heavy garden soil from getting away and muddying the pool, top off each pot with an inch or so of pea gravel.
- Use plant tubs or pots with no drainage holes. This step ensures that the heavy garden soil doesn't get loose in your water garden.
- Proper planting depth is usually 1 to 6 inches below the water's surface. So elevate the pots on blocks, bricks, or overturned pots. Some pools have shelves along the sides that are meant to support potted water plants.

- Buy and pot water plants in late spring, lowering them carefully into warmed-up water. Hardy water plants can go in water that has reached 50°F (10°C); tropical ones have to wait for at least 70°F (21°C) water.

REMEMBER

- Don't overplant, or your plants will crowd one another and require constant pruning or even eviction (packed-in waterlilies do a desperate and unattractive thing called *pyramiding*, where their leaves rear up into the air). Your goal is two-thirds coverage of the water surface; this amount looks nice, prevents algal growth, and still allows some open water for reflections.

Waterlilies

Two basic kinds of waterlily, hardy and tropical, are available. To the uninitiated, they seem much the same, but these plants have significant differences. Provided you attend to the water-temperature requirements, you can grow either or both kinds in most parts of the country. Here are the some descriptions and varieties you're likely to encounter:

- **Hardy waterlilies:** Hardies are generally smaller (flowers *and* plants) than tropical waterlilies, and the hardy flowers usually float on the surface of the water among the leaves. The varieties you're likely to encounter include bright yellow 'Joey Tomocik,' 'Helvola,' and 'Charles Strawn,' ruby red 'James Brydon' and 'Louise,' hot pink 'Mayla,' pastel pink 'Pink Grapefruit,' 'Pink Beauty,' 'Pink Sensation,' and pristine white 'Gladstone' and 'Lady of the Lake.'

  There are night-blooming tropical waterlilies — so you don't have to rush home from work to enjoy your water garden. They open in the late afternoon and don't close till the following morning. One example is a tropical variety, 'Wood's White Knight.'

- **Tropical waterlilies:** Tropicals have larger flowers and are often more sprawling plants. They proudly hold their flowers above the leaves. The tropicals extend the range into some gorgeous hues of blue and purple. Common varieties are sunset-hued 'Albert Greenberg,' lavender-pink 'General Pershing,' royal purple 'Panama Pacific,' raspberry pink 'Miami Rose,' purple 'Royal Purple,' dark blue 'Star of Zanzibar,' hot pink 'Antares,' and multi-hued blue-pink 'Foxfire.'

As for color, waterlilies come in shades of white, cream, bright and soft yellows, red, pink, and salmon. Waterlily blossoms centers are usually yellow (sometimes with the *stamens* — stalks with pollen sacs — tipped in a petal-matching color); the contrast between the bright center and petals can be quite stunning. As a bonus, some waterlilies are sweetly fragrant, especially the tropicals. For help on planting these lilies correctly, see Figure 20-5.

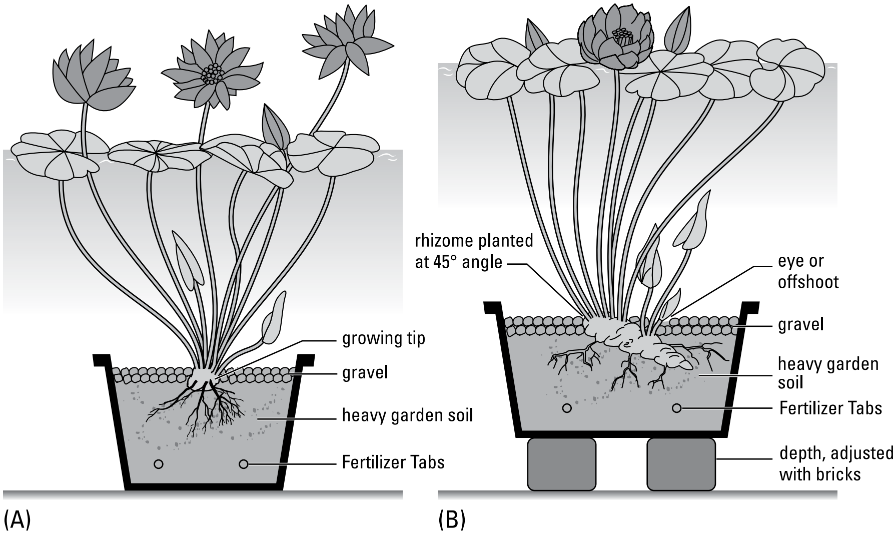
growing tip
gravel
heavy garden soil
Fertilizer Tabs
(A)
rhizome planted at 45° angle
eye or offshoot
gravel
heavy garden soil
Fertilizer Tabs
depth, adjusted with bricks
(B)

FIGURE 20-5: Planting tropical waterlilies (A) and hardy waterlilies (B).

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TIP

To determine whether a waterlily is a tropical or hardy one, keep the following in mind:

- The blue and purple flowers are only found in the tropical varieties.
- The tropical ones always hold their flowers above the water whereas the hardy waterlilies rest their flowers on the surface of the water.
- Hardy lily pads are smooth and perhaps more substantial and usually plain green (certainly at maturity), whereas tropical lily pads are scalloped or toothed, and the pads may have flecks or splashes of color.

Lotus

As a symbol of creation, the lotus stakes its place as a sacred flower in Buddhism and Hinduism. To be sure, lotus is one of the most exotic and beautiful creatures in the plant kingdom: the big, dramatic stalked leaves are attractive, and they shed droplets of water like quicksilver — gorgeous! The buds and blossoms are utterly magnificent, and the large, unusual seedpods are decorative in their own right.

Despite their big size, lotuses grow from a surprisingly delicate, banana-shaped rootstock. Get one in spring and handle it exceedingly gently, especially when potting it. Favorite lotus varieties include ivory white with hot pink margins ‘Cha-wan Basu,’ yellow-to-cream ‘Perry’s Giant Sunburst,’ soft pink ‘Mrs. Perry

Slocum,' yellow with pink highlights 'Sunrise Brocade,' pink 'Maggie Belle Slocum,' and rosy pink 'Momo Batan.' Here are the growing requirements:

- **A big, big planting tub, full of heavy garden soil (and no drainage holes):** A tub that measures 24 x 9 inches, such as a laundry tub, is reasonable. These plants can get quite large.
- **Enough space:** Not every water garden can hold a lotus. Some varieties can spread 10 or 12 feet or more, with those leaves rearing up on 7-foot stalks. Submerge the potted lotus in an inch of water to start; then move it to 4 or more inches over time — less is better, though.
- **Sun:** Lotuses need at least six to eight hours of sunlight a day. (A lotus will tolerate some shade if the air temperatures are warm and if you aren't banking on getting it to bloom.)
- **Plenty of food:** Poke fertilizer into the pot often, and carefully, to avoid disturbing that fragile rootstock. Four to six waterlily-fertilizer tablets monthly during the growing season are a typical dose but get exact information from the place where you buy your lotus.
- **A long growing season if you want the flowers and pods that follow:** A short summer won't do — lotuses really need two or even three consecutive months of temperatures over 80°F (26°C)
- **Patience:** Lotus often spends its first season just getting used to life in its tub and in your water garden. Lush growth and — maybe, just maybe — those sensational flowers usually happen the second season.

So-called marginal plants

Marginal plants are the plants that supply height in a water garden (or vertical interest, as landscapers say). Though you may have seen them in containers or growing on land in damp ground, they're well able to grow in a pot that's immersed in an inch or more of water. Other names nurseries use for this sort of plant include *bog plants, emergent plants, pondside plants,* and *moisture-loving plants.* Marginals grown for attractive foliage include canna, mosaic plant, papyrus, various irises, arrowhead, spike rush, umbrella palm, and elephant's ear. If you want beautiful flowers from your marginals, check out canna, golden club, various irises, pickerel weed, and lizard's tail.

Like waterlilies, some of these plants are winter-hardy; others are tropical. The tropicals can't go in the water till the weather has warmed up to at least 70° F and must come out when the water and weather begin to cool down in the fall (to be discarded as annuals or overwintered indoors — see the section, "Winterizing your plants and fish," later in this chapter for more information). Hardy ones are fine in 50°F (10°C) or higher water.

Water gardeners can grow either tropicals or hardies or both kinds almost anywhere in North America. Mix and match them for a more interesting, textured display. Favorite hardy marginals include arrowhead, cattail, golden club, various irises, lizard's tail, pickerel weed, and spike rush. Favorite tropical marginals include canna and water canna, papyrus, mosaic plant, umbrella palm, and elephant's ear.

Floaters and submerged plants

Though not as flashy as some of the others, floaters and submerged plants are important to a successful water garden. Floaters are welcome because they help fulfill that two-thirds-coverage requirement for the water garden's surface. They also provide shelter for fish and use nutrients that may otherwise feed unwanted amounts of algae. Favorite floaters and submerged plants include eelgrass, fairy moss, parrot's feather, water hyacinth, water lettuce, and hornwort.

Submerged plants can fill a similar role or just hang out under the water. Occasionally you'll see submerged plants billed as *oxygenating plants*, though the oxygenation doesn't occur constantly; they generate oxygen underwater only during the daylight hours. If you peer into the water, you may see tiny bubbles percolating from their foliage into the surrounding water.

WARNING

Many popular floaters and submerged plants are a problem in the wild. They multiply amazingly fast, clogging waterways and upsetting the balance of nature. It's now illegal to sell or transport some in many jurisdictions. So don't cheat — buy only from a reputable nursery, make sure they go straight into your water garden, and *never, ever* improperly discard any part of them. That means don't toss or dump them into wild or manmade waterways or even your back forty or compost pile. Play it safe and bag up unwanted plants and plant parts, and send them away with your household garbage.

WARNING

Water hyacinths can be quite beautiful in a water garden, but unfortunately they can be very invasive when left on their own in open water, especially in warmer climates. When my wife and I lived in Mexico, water hyacinths were a constant nuisance in the lakes. Hence, it's illegal to sell or grow them in some states.

Adding Goldfish to Your Water Garden

One of the main reasons many people want a water garden in the first place is so they can have fish. Fish make the whole scene come alive. They've sometimes been referred to as the butterflies of water. Taking care of pond fish is like caring for aquarium fish, except you must deal with the issues related to keeping fish outdoors. You have plenty to discover about the selection and care of pond fish. Get help and information from wherever fish are sold.

WARNING

I haven't mentioned koi here because, to be honest because they aren't a good choice unless you have a large water garden (at least (6 x 8 x 4 feet) and are willing to provide protective barriers for your plants. Koi can be very destructive to plants. In most cases you're better off sticking with goldfish that cause much less plant havoc.

Two breeds of goldfish stand out as the best candidates for a small pool or water garden are (see Figure 20-6):

- **Shubunkins:** Most of the Shubunkins are calico colored, usually with orange and black markings on a white background.
- **Sarasa Comets:** It's a more striking one with bright red markings on a white body. The "fancy" breeds with rounded bodies and flowing fins are more particular about their water quality and are slow moving so they're easy targets for predators like frogs, raccoons, and herons.

Both of these fish are undemanding and hardy and don't require much space. They add movement and flash to your garden.

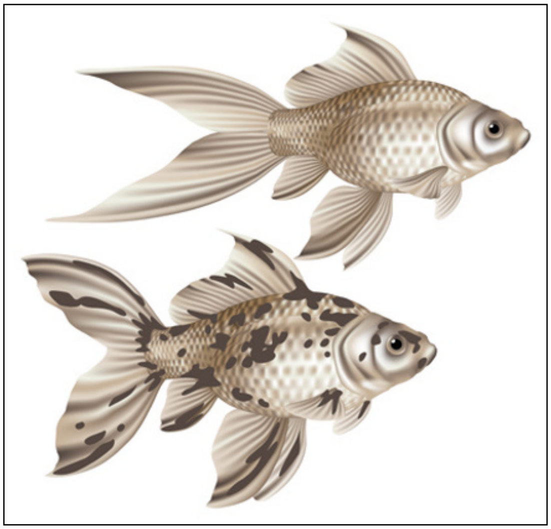


FIGURE 20-6: Two great goldfish for smaller pools: Comet (top) and Shubunkin (bottom).

© Shutterstock

REMEMBER

Adding game fish is only practical with large ponds, a half-acre in size or more. Those kinds of ponds are beyond the scope of this book. Native fish can be stocked, but most people opt for ornamental, cold-loving fish like goldfish. Most garden centers and pet stores stock fish that are appropriate for ornamental ponds.

WARNING

A common beginner's mistake is adding too many fish in a pond; it's bad for the fish and bad for your water garden. Results of overcrowding include excessive fish waste (which can smell bad and fuel algal blooms — check out "Controlling algae in troubled waters") and poor fish health. Be conservative and don't add many fish, especially to smaller water gardens and container displays.

Here are the basics of adding fish to your water garden:

- **Watch out for chlorine or chloramines!** If you filled your water garden with municipal tap water, more than likely it's been treated with either or both of these chemicals. Chlorine naturally volatilizes (goes into a gaseous form) and evaporates after a day or so, but chloramine doesn't. Chloramine isn't harmful to humans but can kill fish. The simplest solution to get rid of these additives is to add a chemical-dechlorinating solution, available at pet stores, to your pond water. Make sure the one you buy is designed to remove chloramine. It doesn't appear that low amounts of fluoride sometimes added to water systems is harmful to fish.
- **Don't overstock the pool with too many fish.** A general guideline is no more than 7 inches of fish per 100 gallons of water.
- **Let the water warm up before adding fish.** Allow the water to warm while you're waiting for water-treatment chemicals to subside. The fish will appreciate that (hose water is chilly).

  TIP

  A well-planted pond will provide lots of hiding places to protect your fish from predators. Also, to keep predators like raccoons and herons out, the edge of the pond should abruptly fall off by 2 to 3 feet so these creatures can't wade into get the fish. Also, some people buy heron decoys to put at the edge of the pond to frighten off other predators.
- **Add the fish gradually.** Fish are cold-blooded, and they need time to adjust to the temperature of their new environment. The best method is to float them in the water-filled plastic baggie they came in on the surface for a few hours; then release them.

WARNING

Don't overfeed your fish. The general rule is that however much food they consume in 5 minutes is all they get. Uneaten food fouls the water. Overfed fish are unhealthy and also generate too much waste. Truth is, you really don't *have* to feed your fish at all. They can survive on the natural foods in the water. But it is fun to feed the fish, so if you want to, do it sparingly. Once a day is plenty.

Maintaining Your Water Garden

As I hint in this chapter's introduction, taking care of an installed and stocked water garden is pretty easy. You'll be out there admiring it and monitoring the progress of waterlily buds and other bloomers anyway, so just turn those frequent visits into a brief checkup.

The main water-garden water issue occurs when the water level drops. On hot summer days, you can lose a bit to evaporation. Top off the water garden with the hose; just make sure the end of the hose is immersed and that the flow of water doesn't dislodge a pot or plant. (Yes, I do caution you about the dangers of chlorine and chloramines in municipal tap water in the preceding section, but that info's for when you're pouring in many gallons for the initial filling; a little bit of those chemicals entering the water now shouldn't do your fish or plants any harm.)

If you come out some morning and the water level has dropped dramatically, your liner is damaged and leaking. Siphon off more water until you find the problem spot; then stop and patch it. (Patch kits are available wherever liners are sold.) Insert a garden hose so that one end is submerged. Then take the other end of the hose and take it so it is below the level of the end in the pond. Inhale once to start the suction and this should get the water flowing. If the pond is lower than the ground surrounding it, this manual suction won't work so get a submersible pump. Put it in the pond and attach tubing to the output end of the pump. Turn it on and it will rapidly drain the pond.

Taking care of the plants

Because water-garden plants are potted, sooner or later they run out of food, even though you've potted them in organically rich heavy garden soil. Your best bet is to feed with waterlily tablets, available wherever water-garden plants are sold. These tablets have a balanced formulation that's ideal for waterlilies, lotuses, and marginals. They're easy to poke in (use a finger, dibble, or even a broom handle), and they break down gradually while nourishing the root system.

REMEMBER

Feed your water plants on planting day and monthly thereafter throughout the growing season. Slow down and stop as fall approaches so the plants can enter their normal dormancy.

As the summer progresses, water plants can exceed their bounds and grow a little too lustily. Always remove stems and leaf stalks right at the base (where the pea-gravel layer begins in the pot) so nothing is left to rot and foul the water. Cut or twist the pieces off; never yank, or the whole plant may come out in your fist!

WARNING

Don't toss the pieces back in the water where they can break down and foul and water! Add them to the compost pile or dig them straight into a vegetable-garden's soil. For potentially invasive floaters and submerged plants, play it safe and add them and their prunings to the household garbage.

Winterizing your plants and fish

As fall approaches, the water temperature will cool down, you'll cease fertilizing, and the plants will begin to go dormant. Lower the water level a few inches, and float a ball or block of wood on the surface to prevent a total freeze-over. (A complete coating of ice is bad because it prevents the exchange of oxygen and allows toxic gases to build up. Fish and plants below, even when dormant, can perish.)

Tropical plants should be hauled out of the pond and tossed onto the compost pile. Or if you want to overwinter them indoors, get the details from wherever you bought the plants or try to find a more experienced water gardener to help you. Some tropicals can stay in heated aquariums; you can strip others of all growth and store their little tubers or rhizomes in damp sand.

Hardy plants should be hauled out, too, and given a haircut, leaving only a stub of foliage. If your winters aren't too severe, (Zone 6 or warmer) you can return them to the deepest part of the water garden (no elevating supports now) for the coming months. Otherwise, they can come indoors to a non-freezing place, heaped with straw or another blanketing of mulch until spring returns.

Many pond fish can remain outside during the winter, but it really depends on where you live and on the type of water garden you have. Depending on these conditions, you may have to set up an aquarium inside your home and transfer your pond fish there over the winter season. Again, get help and information from wherever you buy your fish.

Fish that remain in the pond slow down and go dormant in cold weather, just like hardy plants. Reduce feeding in the fall. Eventually, they'll retreat to the deepest part of the pool, perhaps burrowing into some muck there. If you fear for their survival, you can net them and keep them in an aquarium for the winter.

Controlling algae in troubled waters

If your water turns a murky green, the first thing to remember is, *don't panic!* The second thing I want you to know is that no garden pool is ever completely clear and algae-free. Indeed, algae is part of the ecological balance. A small amount, visible as a slightly green (or bronze) cast to the water, or as a coating that forms on the sides, is both normal and healthy. That said, algae can get out of hand at times.

In the early days of a new water garden's life, there's inevitably a flush of algal growth, called a *bloom.* This bloom occurs because plenty of light is available, not to mention dissolved nutrients to nourish it. Small or shallow water gardens are the most vulnerable because they heat up faster, and algae love very warm water. Wait it out. As your waterlilies spread their pads and other plants grow and contribute to the desirable two-thirds coverage I mention throughout this chapter, the algae should subside.

If a smelly pea-soup prevails, you do have a problem, but you also have options. Diagnose the cause, and then take steps to treat it:

- **High water temperature:** Algae prospers with warmth. Add more plants, particularly floating plants, which can out-compete the algae for minerals dissolved in the water. Provide extra, cooling shade, such as a large beach umbrella overhead in the hottest part of the day.
- **Excessive fish food:** The food the fish don't get around to eating breaks down in the water, adding to the organic broth. Fish waste and its byproduct ammonia also encourage algal growth. Try feeding fish less ("only as much as they can consume in 5 minutes" is the rule) and/or take out some fish. Install a filter to help remove fish waste. Treat the water with a liquid ammonia remover (such as Ammo-Lock); follow label directions with great care.
- **Excessive nutrients:** The source may be runoff from your adjacent garden or lawn, or perhaps you're overfertilizing your water garden plants. Cut back on the fertilizer and/or create diversion and drainage channels to keep runoff away. Keep yellowing and fading plant parts trimmed off (don't let them break down in the water). Also, make sure leaves and other lawn debris doesn't end up in the water.
- **Improper water pH level:** Buy a simple kit and test (first thing in the morning is the best time to check). It should be between 6.5 and 8.5, ideally around 7.0. Adjust with water garden chemicals as necessary (get the products and advice from wherever you got the test kit).

You can use your bare hands to remove algae, but understand that hauling out algae is a temporary solution. It can make your display look better for a while, but if you don't address the cause, more will soon replace it.

WARNING

Be reluctant to use chemical weed killers. They're only effective for a short time and rarely solve the problem. When the algae die from the algaecide, it sinks to the bottom of the pool and then rots, which increases the nutrient broth that will feed new algae that will form very quickly. Also, some of the chemicals used to kill algae are toxic to fish and other plants in your water garden. It takes patience, but you're much better off in the long run to follow these longer-term solutions.

6

The Part of Tens

IN THIS PART . . .

Get some beginner tips and answers to some questions you may be afraid to ask about annuals, perennials, soil preparation, organic matter, roses, vegetables for shade, plants for dry areas, plants to prevent erosion, lawn weeds, and plants resistant to deer.

Discover some outstanding herbaceous perennials that laugh at cold temperatures.

Find out how your children or grandchildren can enjoy special gardening project designed just for them.

Compare Canadian climate maps to the U.S. maps so you can better figure out which plants will be hardy in your area if you’re a Canuck.

Convert measurements back and forth between metric and English measure with helpful charts.

IN THIS CHAPTER

- **Growing hearty plants with colors**
- **Adding plants to a shade garden**
- **Including some blues and purples into your garden**

Chapter 21

Ten Great Perennials for Northern Climate Gardeners

Just because you live in a cold climate doesn't mean that you still don't have plenty of choices of what to grow. Tropical plants aren't as good a choice as hardy perennials, even though you can still grow them outdoors as annuals during the summer. You can grow just about all the annual flowers and vegetables in northern climates, but I suggest you start them ahead of time indoors or buy transplants, so they have a head start in a short growing seasons. (Chapter 10 discusses how you can start seeds indoors.) Here are some plant gems that can take whatever cold weather throws at them.

All these plants in this chapter are hardy to Zone 3 (USDA Plant Hardiness Map or Canadian Plant Hardiness map Zone 4 (see the color insert for these two maps).

Achillea

This genus of plants is bone tough and offers a full range of flower colors, from yellow to orange to pink to red and sports various foliage textures. A northern climate garden without at least one Achillea is hard to imagine.

A few to try include the following:

- 'Moonshine' is an oldy but goody that dependably put on its show of bright yellow flowers above aromatic, finely cut, silver leaves. It blooms for weeks in late spring to early summer. This is an indispensable plant that is drought tolerant, deer resistant, and very undemanding in its soil requirements.
- 'Cerise Queen' has knock-out magenta flowers.
- 'Summer Pastels' is an excellent pastel mix of pink, purple, mauve, salmon, orange-red.
- 'Apple Blossom' has lilac-pink flowers.

Astilbe

If you're looking for plants that perform beautifully in a moist spot in the shade, you need to look no further than astilbes. They're found in a range of colors and plant heights. You can find different varieties that extend the flowering season for these beauties.

'Amethyst' adds charming plumes of soft lilac purple flowers to your shade or semi-sunny garden. Its attractive dark green foliage that persists through the summer is a bonus.

False Indigo (Baptisia)

Blue is a rare color in the garden, so the most common blue form of this genus fits this bill. This tough North American native grows upright with attractive blue-green leaves and is a super plan for attracting pollinators. In addition to this blue form, you can find other plants in this genus that are yellow, white, and purple.

Bellflower (Campanula)

Hundreds of treasures in this genus display a plethora of bell-shaped pink, red, blue, and white flowers.

Here are two standouts in this group:

- 'Superba' is a dense cluster of bell-shaped purple-blue flowers that makes this plant shine.
- 'Champion Pink' (Canterbury Bells) is on the opposite end of the color spectrum and produces a profusion of soft pink bells.

Coneflower (Echinacea)

This plant has become a must-have perennial throughout most of North America. It's undemanding in its culture and thanks to hybridizers is now available in a broad range of colors including pink, purple, red-orange, yellow even lime-green.

'Cheyenne Spirit' offers a mixture of a myriad of color of flowers. The newer forms bear flowers that are not only brilliantly colored but exceptionally long lasting and are particularly welcome in the late summer and early fall when most other perennials have faded. I've found some of the red-flowering ones sometimes aren't as hardy as the other colors.

TIP

'Magnus' is great garden performer. It's also a good choice for cut flowers or for drying. It does best in full sun and can tolerate dry soils.

Ox-Eye Sunflower (Heliopsis)

Sometime the back of your garden needs a plant that adds some height and pizzazz. Ox-Eye Sunflower fits the bill.

'Asahi' is about 3-feet tall with double sunny yellow flowers. Butterflies love it as much as you will, and it's a supercut flower. It can be used in formal or naturalistic gardens.

Plantain Lily (Hosta)

I can't really imagine a shade garden not having at least a few of these mainstays. They're available in huge variety of leaf shapes, colors, variegations, sizes, and flowers. Most prefer shade, but others are sun lovers. Trying to feature one over the other is just about an impossible task because of the multitude of choices.

‘Mouse Ears’ with its compact-mounded plant habit and bluish green foliage make this one a standout in any garden and in a container. Many other gardeners must agree because the Royal Horticultural Society gave it an Award of Garden Merit, and the American Hosta Society named it Hosta of the Year in 2008.

Rose Campion (Lychnis Coronaria)

The Rose Campion (*Lychnis coronaria*) was one of my grandma’s favorites. It’s still extremely popular today. Some of its many attributes are that it’s forgiving about its soil, and its silver foliage provides the perfect foil for its glowing magenta flowers. If you want a plant that is low maintenance, drought tolerant, and deer resistant, this beauty is a good choice.

Catmint (Nepeta)

Available in various shades of blue and purple, Catmint (*Nepeta*) is a great substitute for the more tender garden lavender in colder areas where lavender won’t overwinter. Another plus is that hummingbirds, bees, and butterflies love it. Catmint is another great performer with low care requirements.

One of my suggestions is ‘Purrsian Blue,’ which has a nice compact heavy blooming variety that puts on a show from summer into the fall.

Black-Eyed Susan (Rudbeckia Fulgida)

Black-Eyed Susans (*Rudbeckia fulgida*) are another of those indispensable perennials with many new color forms showing up. Be aware that this plant comes in annual forms so make sure you check out the variety hardiness before you place it in your garden.

‘Goldsturm’ is a long-lived variety that sets the standard for hardy Rudbeckias for good reasons and holds up to all types of weather. Its bright rich golden flowers add touches of sunshine to any garden and do so for a long blooming season from midsummer through early fall.

IN THIS CHAPTER

- Growing fun plants to play with and use
- Getting creative with seeds and sunlight
- Creating outdoor environments for watching birds and butterflies

Chapter 22

Ten Garden Projects for Children

Many kids are fascinated by how plants, and even birds and butterflies, grow and thrive in the world just outside their front doors. So why not give children the chance to play in the dirt and get up close and personal with insects and earthworms? Spending time outdoors teaches kids about science, gives them room to play and relax, and trains kids to find entertainment beyond the warm glow of the computer or TV screen.

You can find easy ways to help your children love gardening just as much as you do! Here are some fun project ideas to get your budding botanist a good start in the world of gardening.

Create a Dinosaur Garden

This time-honored project will be around as long as there are small children with plastic dinosaur action figures. Just set aside a shady corner that includes ferns and some rocks. Your children can make their toy dinosaurs run rampant in the miniature jungle. While you're at it, try creating a designed dig area by burying some bones or other garden artifacts that are just waiting to be discovered.

Grow a Sunflower Fort

Buy sunflower seeds for those big, huge, tall sunflower varieties, and plant them in a square or circle in a sunny spot in your yard. Water and fertilize them often and be amazed as they surge into growth. With luck, the plants may support one another, or you can provide support stakes. Your kids can spend hours playing inside the “rooms” the sunflowers create.

You can also create a teepee by growing climbing plants on several poles lashed together.

Make Sunprints

Buy light-sensitive paper — many toy stores and school suppliers carry it. Have the kids go out in the yard and pick things — flowers, pinecones, seed pods, interesting leaves — and lay them on the paper in the sun for about 7 minutes. Children can create patterns if they’d like. Then rinse the paper with lukewarm water and let it dry. This nature-inspired art is suitable for framing!

Plant Mini-Pumpkins

These cute little pumpkins are so much easier to grow to orange maturity than traditional jack-o-lantern pumpkins, and many children love growing and playing with them. The vine rambles, like any squash-family plant, so make sure you give the pumpkins enough room to grow. Organically rich soil is important, too. See your local nursery about getting varieties that do well in your area. See Chapter 15 for tips on growing pumpkins, melon, squash, and other warm-season veggies.

Write with Seeds

Planting seed in the pattern of letters and seeing how they grow to form living words is fun. Radish seeds work great because they’re easy to pour and maneuver (more so for little fingers than adult fingers, actually) and they germinate in a couple days. Beans are also a good choice. You and your child can do your names, your initials, even a happy face. For more details on growing plants from seeds see Chapter 10.

Trap a Zucchini

Take a see-through plastic bottle out to the garden when zucchini fruit are just forming; slide the neck of the bottle over the little fruit. It'll keep growing inside the bottle, probably even filling it! Any size bottle will do. The fruit will stop growing when it fills up the container. In Chapter 15 you can find out more information about growing zucchini and other squash.

REMEMBER

Using a plastic container is safer. In fact, a good approach is to cut the bottle in half, lengthwise, then enclose it around the developing fruit (like a mold), securing the container with rubber bands. Then, when the plant fills the container, the bands can be removed and the fruit will be shaped like the container. Try some fanciful containers, like the bear figures frequently used for honey containers.

Make a Home-Grown Salad

Kids have fun trekking out to the vegetable garden with a big basket and picking the ingredients needed for the dinner salad. After bringing everything inside and washing up well, the kids can slice, tear, chop, and serve the salad to the grown-ups (and save some for themselves!). It's particularly fun for kids to make faces or patterns with cherry tomatoes or sliced big tomatoes. For tomatoes, peppers, and salad greens, you'll probably have more success and quicker results buying plant starters from your local garden center rather than starting them from seeds. For more details on growing veggies, check out Chapter 15.

REMEMBER

Be sure to have the kids pick only what you need from the garden and no more!

Grow Paperwhites

These sweetly scented, white-flowered daffodils are very easy for children to grow. They don't even need soil — a dish of gravel will do. Just don't forget to keep paperwhites watered. Roots form and grab onto the gravel, green leaves shoot up, and those pretty, fragrant blossoms soon follow. The bulbs are usually for sale and to grow in the fall and early winter in stores that carry gardening supplies. See Chapter 8 for more information on forcing bulbs.

Set Up a Birdbath

Bring the kids along to the local nursery or hardware store to pick out a bird bath, and discuss the merits of size and style. Get the kids involved in picking out a good spot in the yard — in the open but not far from sheltering shrubs or trees so skittish birds can get to safety if need be. Kids can have fun spying on the birdbath from the house or across the yard. The birds may be slow to discover and use the bath, but after they do, their antics can provide hours of entertainment. Get the kids involved is refreshing the water and periodically cleaning out the birdbath.

TIP

Pick up a book on bird species so your kids can have fun identifying the various types of birds that visit the bath.

Attract Butterflies to the Garden

Plant a guaranteed butterfly-magnet plant like butterfly bush *(Buddleia)* or butterfly weed *(Asclepias)*. Milkweed and lantana are other fine choices. Your kids can have much fun watching as the local butterflies, and possibly even hummingbirds, visit the bush.

WARNING

Using pesticides in your garden will also kill the butterflies and other desirable insects. If you must use pesticides, use them with great care. Alternatively, consider using a woven fabric row covers draped over plants that you want to protect. See Chapter 16 for more safe insect controls.

TIP

Look for a book about butterfly species so your kids can have fun reading about the butterflies that live in your area. You can also check out `www.dummies.com` and search for "Attract butterflies" for some great suggestions on attracting butterflies to your garden.

IN THIS APPENDIX

- **Considering some gardening sources online**
- **Trying university resources**
- **Looking at different gardening organizations for guidance**
- **Discovering freeze dates in Canada**

Appendix A

Basic Gardening Resources

So many resources for purchasing plants and tools or just gathering information are available that beginning gardeners are often intimidated by the vastness of it all. With this appendix, I attempt to break down the sheer volume of gardening information into some simple, basic websites that you can use as a starting point for exploring the resources at your disposal. These recommended sites offer a wealth of info on many aspects of gardening, and they're the ideal place to start when exploring the universe of gardening online.

From practical tips to the latest research, universities, local botanical gardens, and arboreta offer valuable info and give a regional perspective. National organizations also have regional and local branches, and their sites tell you of events to attend, groups to join, and gardens to visit. If you have a particular plant passion, you're likely to find a plant association of like-minded gardeners online, including on Facebook, Pinterest, Instagram, and YouTube. Many offer expert advice, publications, e-newsletters, and regional gatherings. You can also find many sites on organic gardening, which can help you create a garden that's healthy for your family, for wildlife, and for the environment. And of course, you can search through numerous online mail-order companies that can supply you with what you need to start your garden. For mail-order vendors, check out their rating before placing an order. One site that is useful for finding out about and assessing suppliers is Dave's Garden (`https://davesgarden.com/products/gwd/`).

Examining Gardening Information Online

A huge amount of gardening information is available online — some good and some not so trustworthy so be discerning of the source. Here are just a few that are of the most credible:

The Garden Professors (`http://gardenprofessors.com`)

Gardenia Creating Gardens (`www.gardenia.net`)

Internet Directory for Botany (`www.ou.edu/cas/botany-micro/idb-alpha/botany.html`)

The Laid-Back Gardener (`https://laidbackgardener.blog`)

Missouri Botanical Garden Plant Finder (`www.missouribotanicalgarden.org/plantfinder/plantfindersearch.aspx`)

The National Gardening Association (`http://garden.org`)

Small Town Gardener (`https://smalltowngardener.com/`)

Sunset Magazine Guide to Climate Zones for Gardening in the West (`www.sunset.com/garden/climate-zones/sunsets-garden-climate-zones`)

The Spruce, Gardening (`www.thespruce.com/gardening-4127780`)

USDA Heat Zone Map (`www.gardeners.com/how-to/heat-zones/7032.html`)

USDA Plant Hardiness Zone Map (`https://garden.org/nga/zipzone/`)

Turning to U.S. University Resources

Most land grant universities in the United States have helpful local information about gardening. Your own state land grant might provide you the most relevant local information, but all the following offer good solid gardening information for all gardeners. I include a few that I've found particularly helpful:

University of California: The California Garden Web (`http://cagardenweb.ucanr.edu/`)

Clemson University: Home and Garden Information Center (`https://hgic.clemson.edu/`)

Cornell University Extension (`https://hort.cals.cornell.edu/extension-outreach`)

University of Florida Extension: Lawn and Garden (`https://sfyl.ifas.ufl.edu/lawn-and-garden`)

University of Illinois Extension: Horticulture (`https://extension.illinois.edu/global/horticulture`)

Michigan State University Extension: Gardening in Michigan (`www.canr.msu.edu/home_gardening/`)

North Carolina State University Extension: Home and Garden (`www.ces.ncsu.edu/categories/lawn-garden/`)

Ohio State University Extension (`https://ohioline.osu.edu/topic/horticulture`)

Penn State Extension: Trees, Lawn and Landscaping (`https://extension.psu.edu/trees-lawns-and-landscaping`)

Purdue University Consumer Horticulture (`www.purdue.edu/hla/sites/yardandgarden/`)

Texas A&M: Aggie Horticulture: Gardening and Landscaping (`https://agrilifeextension.tamu.edu/browse/featured-solutions/gardening-landscaping/`)

Virginia Cooperative Extension: Lawn and Garden (`https://ext.vt.edu/lawn-garden.html`)

Referring to Gardening Organizations

Gardening organizations are great resources for unbiased information about gardening, suppliers, and further resources. Check out these sections for more information.

Nonprofit organizations

These nonprofit organizations offer a wealth of gardening information. Many of them offer publications:

America in Bloom (`www.americainbloom.org`)

American Community Gardening Association (`www.communitygarden.org/`)

American Horticultural Society (`https://ahsgardening.org`)

Association of Societies for Growing Australian Plants (ASGAP) (`http://anpsa.org.au/`)

Extension Master Gardener (`https://mastergardener.extension.org/`)

Garden Club of America Garden (`www.gcamerica.org`)

The Garden Conservancy (`www.gardenconservancy.org`)

The Gardeners of America (`www.gardenersofamerica.club`)

Hobby Greenhouse Association (`www.hobbygreenhouse.org`)

The National Arbor Day Foundation (`www.arborday.org/`)

National Garden Clubs (`www.gardenclub.org`)

National Wildlife Federation: Backyard Habitats (`www.nwf.org/backyard`)

Plant a Row for the Hungry (`www.gardenwriters.org/`)

Rocky Mountain Seed Alliance (`https://rockymountainseeds.org`)

Seed Savers Exchange (`www.seedsavers.org/`)

U.S. plant associations and societies

About every kind of plant has a plant society. Here are few that are helpful. They're great resources for specific plant information and suppliers:

The American Bonsai Society (`www.absbonsai.org`)

American Dahlia Society (`www.dahlia.org`)

American Hosta Society (`www.americanhostasociety.org`)

American Rhododendron Society (`www.rhododendron.org`)

American Rose Society (`www.rose.org`)

The Herb Society of America (`www.herbsociety.org`)

Home Orchard Society (`www.homeorchardsociety.org`)

The International Waterlily & Water Gardening Society (`www.iwgs.org`)

North American Fruit Explorers (NAFEX) (`https://nafex.org`)

North America Native Plant Society (`http://nanps.org`)

North American Rock Garden Society (`www.nargs.org`)

Canadian gardening resources

Here are a few resources specific to Canada:

Canadian Garden Clubs (`www.icangarden.com/clubs.cfm`)

Canadian Living: Gardening (`www.canadianliving.com/home-and-garden/subsection/gardening`)

Communities In Bloom (`www.communitiesinbloom.ca/`)

***Gardening Basics For Canadian Gardeners For Dummies* Cheat Sheet** (`www.dummies.com/home-garden/gardening/gardening-basics-for-canadians-for-dummies-cheat-sheet/`)

Horticulture Associations in Canada (`www.agr.ca/eng/horticulture`)

Ontario Horticultural Association (OHA) (`https:/gardenontario.org/about/`)

Ontario Rock Garden and Hardy Plant Society (`www.onrockgarden.com`)

Plant Hardiness Zone Maps in Canada (`http://sis.agr.gc.ca/cansis/nsdb/climate/hardiness/index.html`)

Webgrower.com (`www.webgrower.com/regional/canada.html`)

Plant associations in the UK

The United Kingdom is so lucky to have so many garden resources — too many to count really. Here are just few:

Garden Organic (`www.gardenorganic.org.uk`)

The Royal Horticultural Society (RHS) (`www.rhs.org.uk/`)

UK gardening websites (`www.independent.co.uk/property/gardening/best-gardening-websites-861791.html`) and (`www.gardenarena.co.uk/british-gardening-services/directories/uk-garden-societies-associations`)

Organic gardening experts

You may be most interested in the organic approach to gardening. Here are a few resources:

How to Compost (`www.howtocompost.org`)

Organic Grower's School (`https://organicgrowersschool.org/gardeners`)

Rodale Institute (`www.rodaleinstitute.org`)

World of Organic Agriculture: USA (`www.soel.de/oekolandbau/links_northamerica.html#usd`)

Canadian Gardening Frost Dates by Region

Canadian gardeners need to know when the growing season in their area begins and ends so they can avoid losing plants to frost. Table A-1 provides frost dates across Canada. To be extra careful, plant or transplant temperature-sensitive plants ten days after these dates.

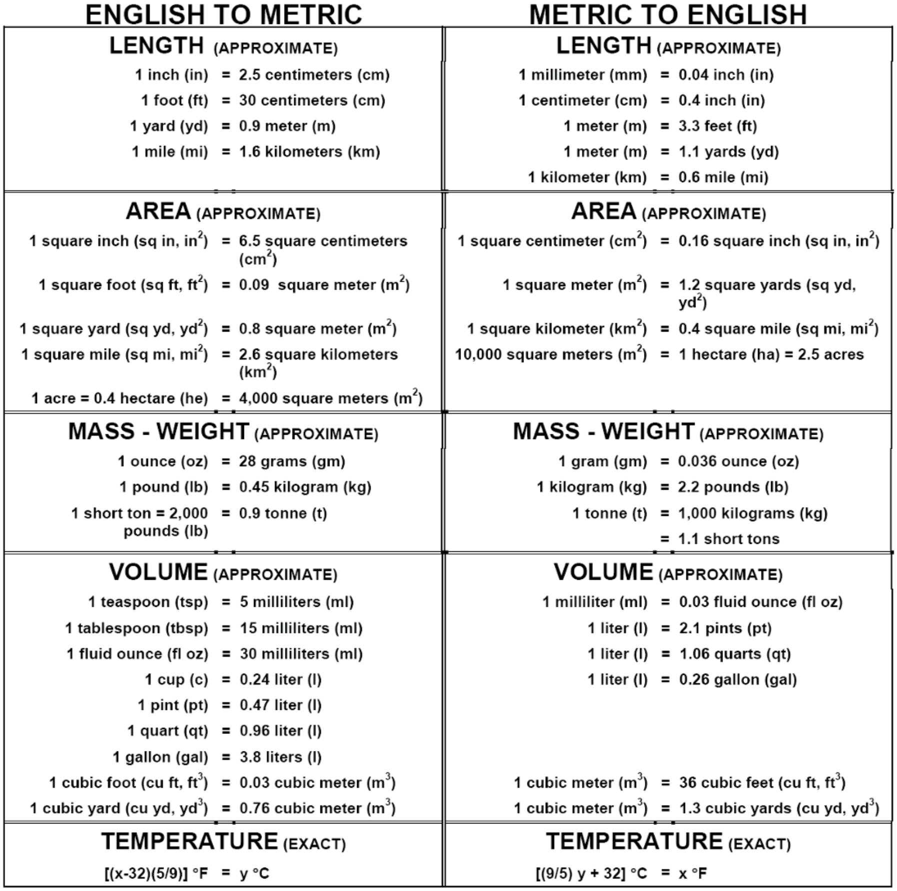
TABLE A-1 Canadian Frost Dates

Location	Last Frost Date	First Frost Date	Typical Number of Frost-Free Days
Calgary	May 23	September 15	115
Halifax	May 6	October 20	167
Montreal	May 3	October 7	157
Regina	May 21	September 10	112
St. John’s	June 2	October 12	132
Toronto	May 9	October 6	150
Vancouver	March 28	November 5	222
Victoria	March 1	December 1	275
Whitehorse	June 11	August 25	75
Winnipeg	May 25	September 22	120
Yellowknife	May 27	September 15	111

Appendix B

English-Metric Conversion Tables

All the measurements in this book are in English measures and weights, and we realize that much of the world's gardeners use the metric system so we include this conversion to help you convert the most common weights and measures that you'll encounter in the garden. Many field guides to plants, insects, and other creatures use the metric system, as do scientific references. Most U.S. seed and nursery websites and catalogs use inches.



ENGLISH TO METRIC

English		Metric
LENGTH (APPROXIMATE)		
1 inch (in)	=	2.5 centimeters (cm)
1 foot (ft)	=	30 centimeters (cm)
1 yard (yd)	=	0.9 meter (m)
1 mile (mi)	=	1.6 kilometers (km)
AREA (APPROXIMATE)		
1 square inch (sq in, in^2)	=	6.5 square centimeters (cm^2)
1 square foot (sq ft, ft^2)	=	0.09 square meter (m^2)
1 square yard (sq yd, yd^2)	=	0.8 square meter (m^2)
1 square mile (sq mi, mi^2)	=	2.6 square kilometers (km^2)
1 acre = 0.4 hectare (he)	=	4,000 square meters (m^2)
MASS - WEIGHT (APPROXIMATE)		
1 ounce (oz)	=	28 grams (gm)
1 pound (lb)	=	0.45 kilogram (kg)
1 short ton = 2,000 pounds (lb)	=	0.9 tonne (t)
VOLUME (APPROXIMATE)		
1 teaspoon (tsp)	=	5 milliliters (ml)
1 tablespoon (tbsp)	=	15 milliliters (ml)
1 fluid ounce (fl oz)	=	30 milliliters (ml)
1 cup (c)	=	0.24 liter (l)
1 pint (pt)	=	0.47 liter (l)
1 quart (qt)	=	0.96 liter (l)
1 gallon (gal)	=	3.8 liters (l)
1 cubic foot (cu ft, ft^3)	=	0.03 cubic meter (m^3)
1 cubic yard (cu yd, yd^3)	=	0.76 cubic meter (m^3)
TEMPERATURE (EXACT)		
[(x-32)(5/9)] °F	=	y °C

METRIC TO ENGLISH

Metric		English
LENGTH (APPROXIMATE)		
1 millimeter (mm)	=	0.04 inch (in)
1 centimeter (cm)	=	0.4 inch (in)
1 meter (m)	=	3.3 feet (ft)
1 meter (m)	=	1.1 yards (yd)
1 kilometer (km)	=	0.6 mile (mi)
AREA (APPROXIMATE)		
1 square centimeter (cm^2)	=	0.16 square inch (sq in, in^2)
1 square meter (m^2)	=	1.2 square yards (sq yd, yd^2)
1 square kilometer (km^2)	=	0.4 square mile (sq mi, mi^2)
10,000 square meters (m^2)	=	1 hectare (ha) = 2.5 acres
MASS - WEIGHT (APPROXIMATE)		
1 gram (gm)	=	0.036 ounce (oz)
1 kilogram (kg)	=	2.2 pounds (lb)
1 tonne (t)	=	1,000 kilograms (kg)
	=	1.1 short tons
VOLUME (APPROXIMATE)		
1 milliliter (ml)	=	0.03 fluid ounce (fl oz)
1 liter (l)	=	2.1 pints (pt)
1 liter (l)	=	1.06 quarts (qt)
1 liter (l)	=	0.26 gallon (gal)
1 cubic meter (m^3)	=	36 cubic feet (cu ft, ft^3)
1 cubic meter (m^3)	=	1.3 cubic yards (cu yd, yd^3)
TEMPERATURE (EXACT)		
[(9/5) y + 32] °C	=	x °F

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About the Author

Steven A. Frowine was a plant nerd, even as a child. Since then, his love and sometimes obsession for outdoor and indoor plants has continued to grow. He worked in various horticultural jobs before and during high school and college. Steve has a bachelor's and a master's degree in horticulture from Ohio State University and Cornell, respectively.

His first job after graduate school was to set up a professional gardeners' program at Pacific Tropical Botanical Garden (now the National Tropical Botanical Garden) on Kauai, Hawaii. He later held other professional horticultural positions at Cleveland Botanical Garden and Pittsburgh Civic Garden Center. At Missouri Botanical Garden, he served as chairman of indoor horticulture.

Steve served as an executive at top horticultural businesses including W. Atlee Burpee Company, White Flower Farm, and International Gardening Products. Steve is sought out as a lecturer and has delivered hundreds of talks throughout the country. His presentations are noted for his excellent photography, his knowledge of the subject, and his sense of humor. He has appeared on various national TV shows and writes extensively, authoring many articles for horticultural trade and consumer magazines.

He has served on the boards of various professional organizations, including the National Gardening Association, Garden Writers of America, and the American Association of Botanical Gardens and Arboreta. Steve served on the Visiting Committee of Longwood Gardens for six years.

Steve enjoys all plants and has a particular fondness for orchids. He wrote *Orchids For Dummies* (John Wiley & Sons, Inc.) He is also the author of *Miniature Orchids, Fragrant Orchids, and Moth Orchids,* and *The Complete Guide to Phalaenopsis* published by Timber Press.

Steve now resides in the beautiful mountain community of Asheville, North Carolina, where he enjoys great gardening possibilities. He makes intensive use of his gardening spaces to grow peonies, hydrangeas, tuberous begonias, primroses, dahlias, delphiniums, roses, other perennials and annuals, lilies, and various spring flowering bulbs, lilacs, various vegetables, peach, apple, and pear trees, and small fruits including strawberries, raspberries, and blueberries. He also has a culinary herb garden. Indoors he grows various orchids, gesneriads, and other tropical plants under lights.

The National Gardening Association (NGA), founded in 1972, is a national nonprofit leader in plant-based education, esteemed for its award-winning website and newsletters, grants, and curriculum for youth gardens, and research for the lawn-and-garden industry. NGA's mission is to advance the personal, community, and educational benefits of gardening by supporting gardeners, communities, and teachers with information and resources. For more information, please visit `www.garden.org`.

Dedication

This book is for all new and veteran gardeners who have discovered or are about to realize the lifelong wonders and pleasures of gardening and the plant world. Please remember that gardening isn't primarily about an end result but about the therapeutic aspects of the journey itself. Enjoy this process, and don't rush it! Let gardening become an integral part of your life. You'll be much richer for it.

Author's Acknowledgments

The first edition of this book would not be possible without the help and advice of Teri Dunn Chase. I am deeply indebted to her. She has continued to make important contributions to this second edition by serving as the technical editor. I have appreciated her skills as an editor and her incites as an experienced gardener and accomplished garden writer.

Chad R. Sievers has served as my very capable project editor and *For Dummies* guide. As a result of his work, this book is more readable and simply better. Behind the scenes, Wiley's acquisition editor Kelsey Baird has helped bring this book to life.

I've been pleased and privileged over the years to witness the good works of the National Gardening Association (NGA). Thanks to this organization and its executive director, Dave Whitinger, I received the opportunity to produce this book. I hope it does justice to their mission of bringing the joys of gardening to all.

As with any book project, the spouse or companion of the writer suffers from neglect. My wife, Sascha, never wavered in her patience and understanding. She has always been supportive and loving, and I'm lucky to have her as my wife! And last, I must not forget Theo and Sophie, our two dogs that always keep me company and face every day with enthusiasm.

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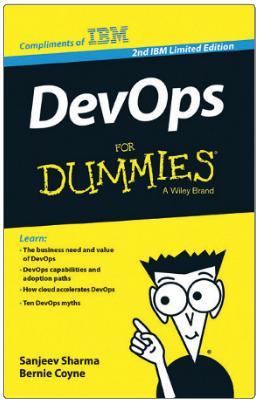

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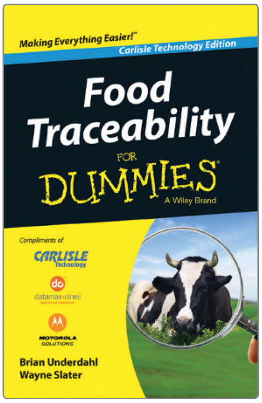

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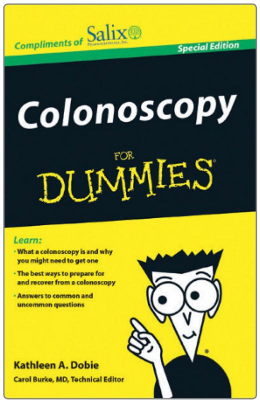

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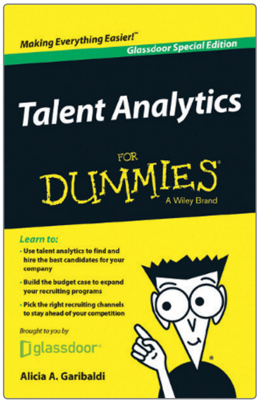

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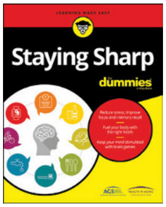
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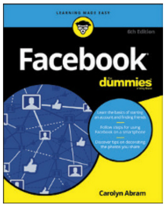
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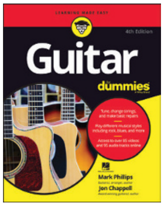
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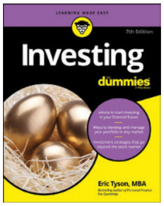
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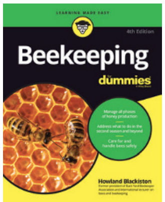
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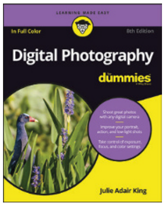
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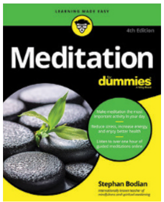
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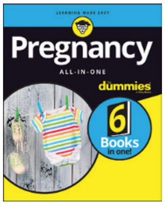
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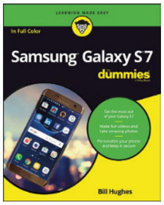
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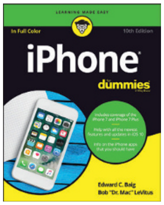
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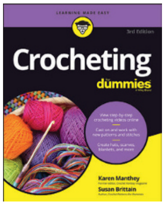
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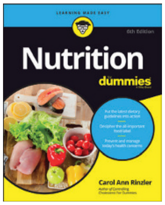
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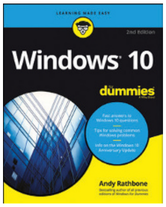
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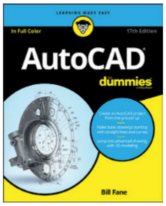
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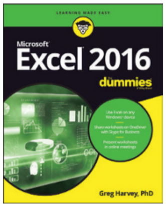
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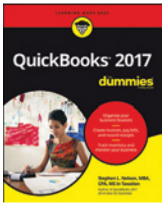
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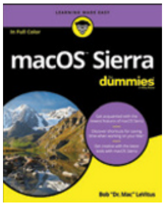
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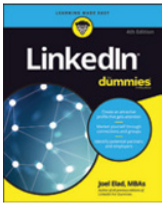
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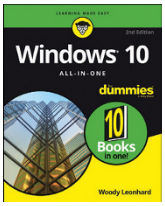
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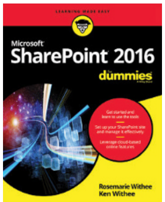
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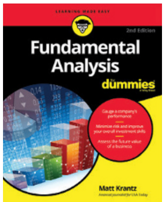
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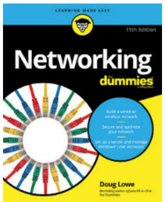
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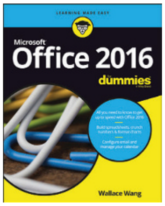
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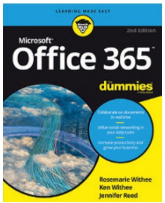
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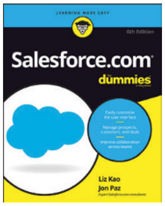
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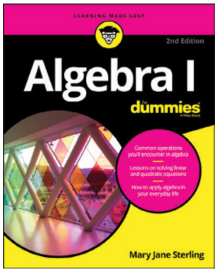
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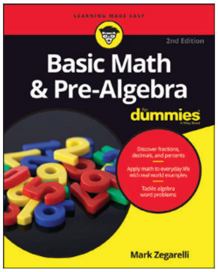
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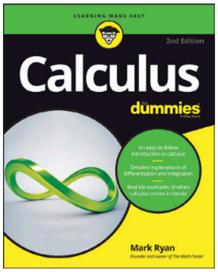
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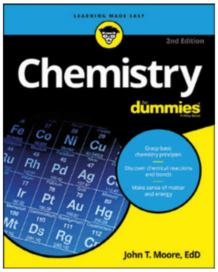
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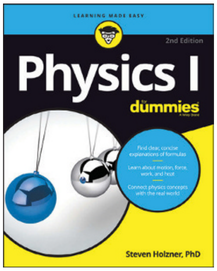
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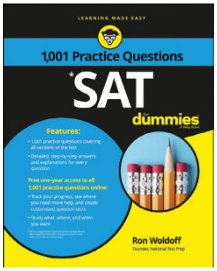
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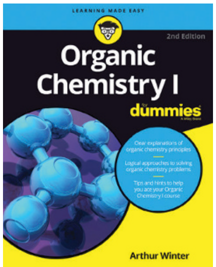
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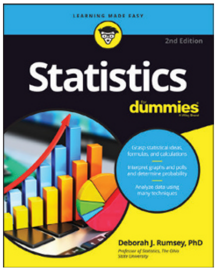
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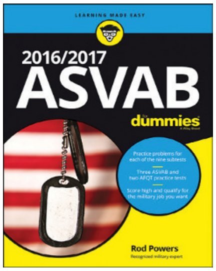
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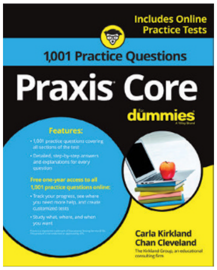
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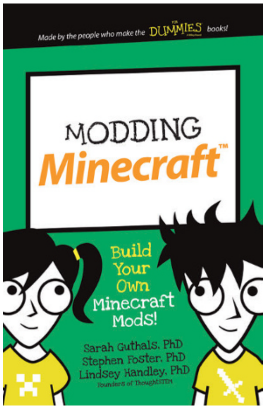
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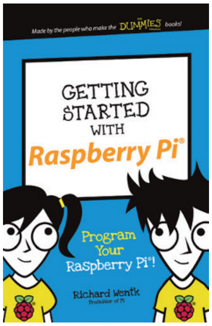
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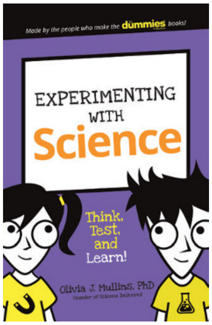
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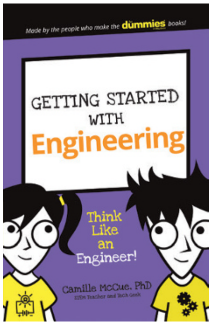
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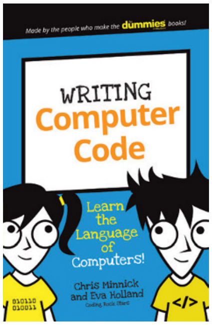
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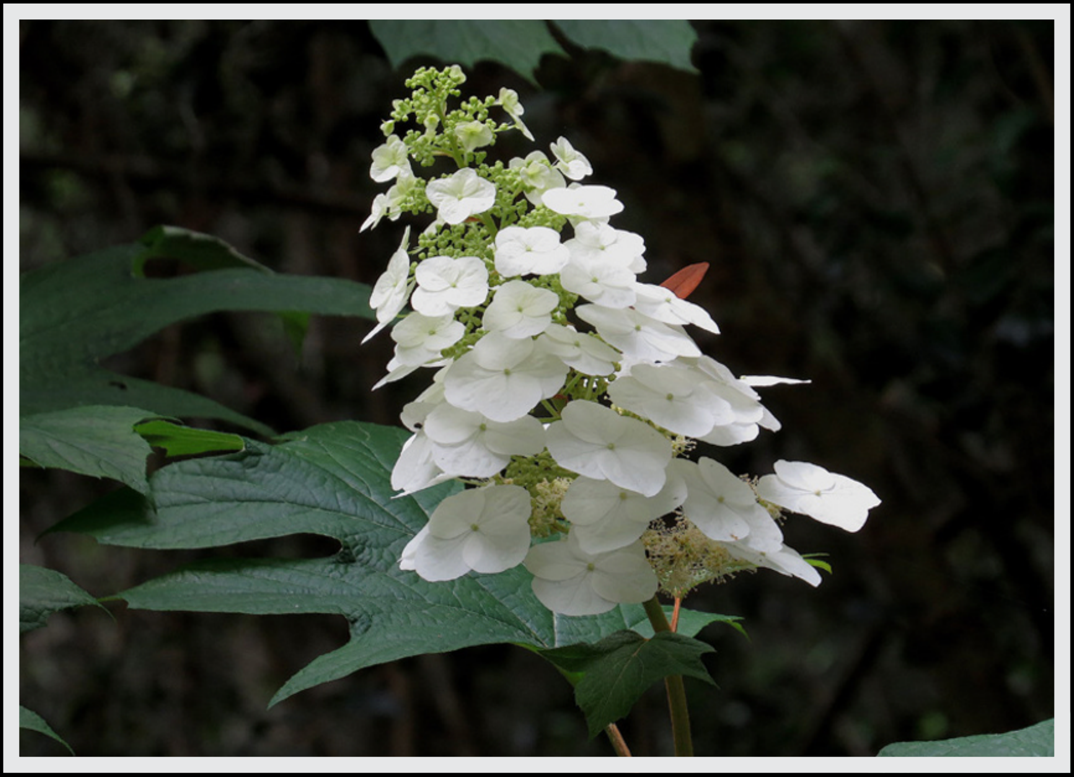


Photo by Linda J. Vosbury

***Hydrangea quercifolia*, Oakleaf Hydrangea (see Chapter 13) is a great performer in the sun and shade.**

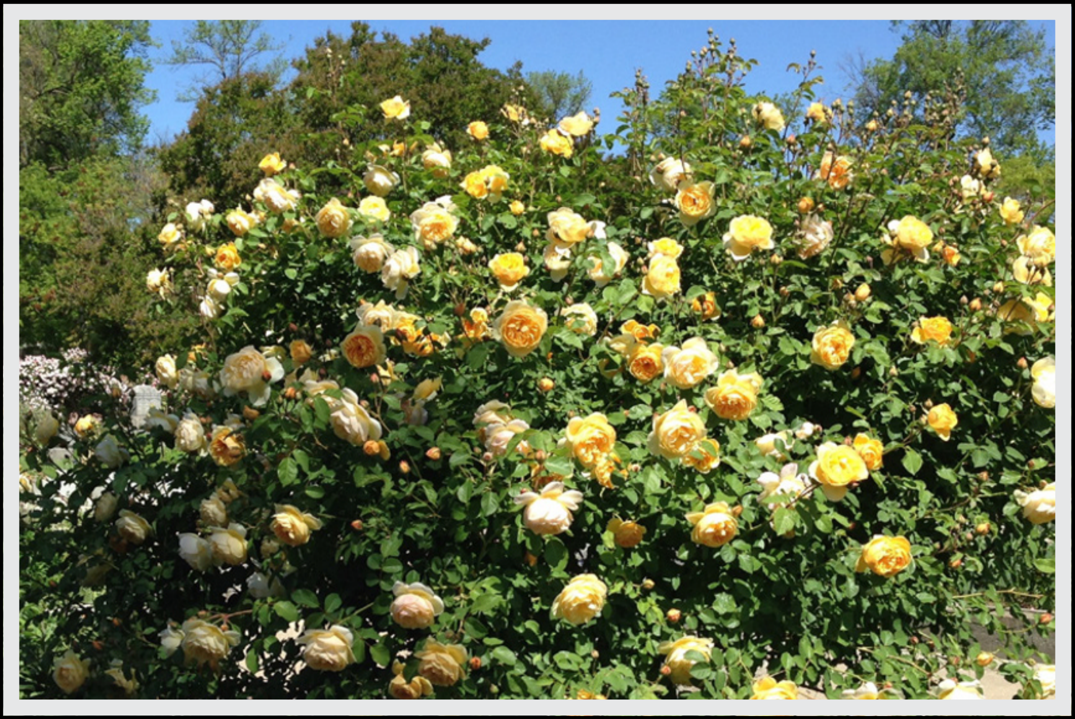
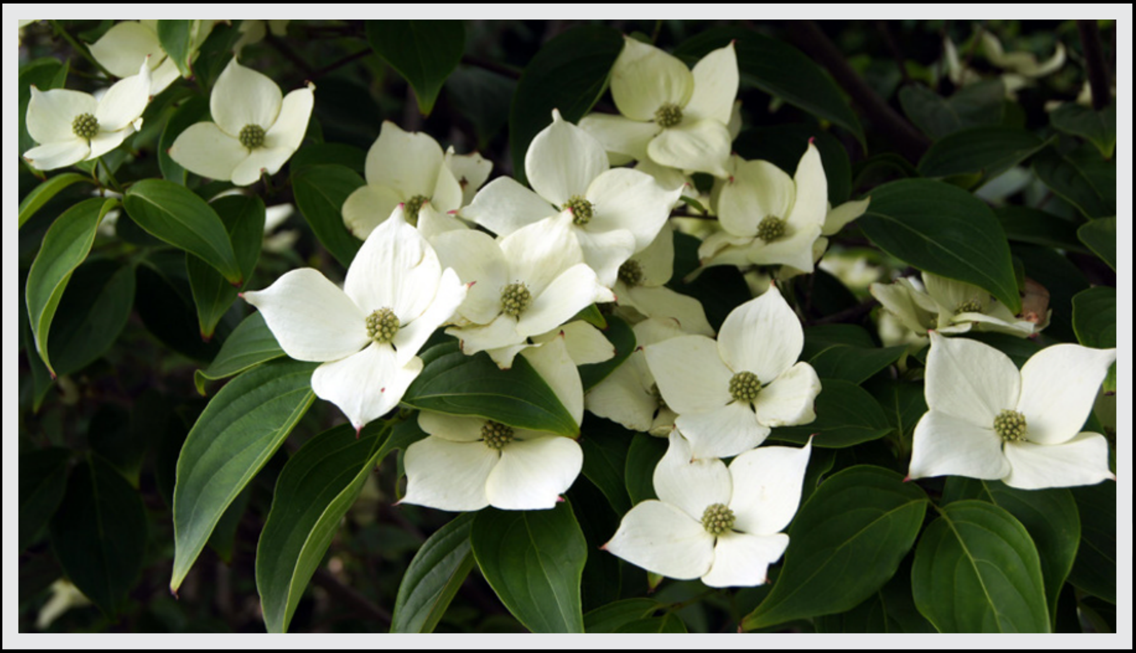


Photo by Leslie Hurlburt

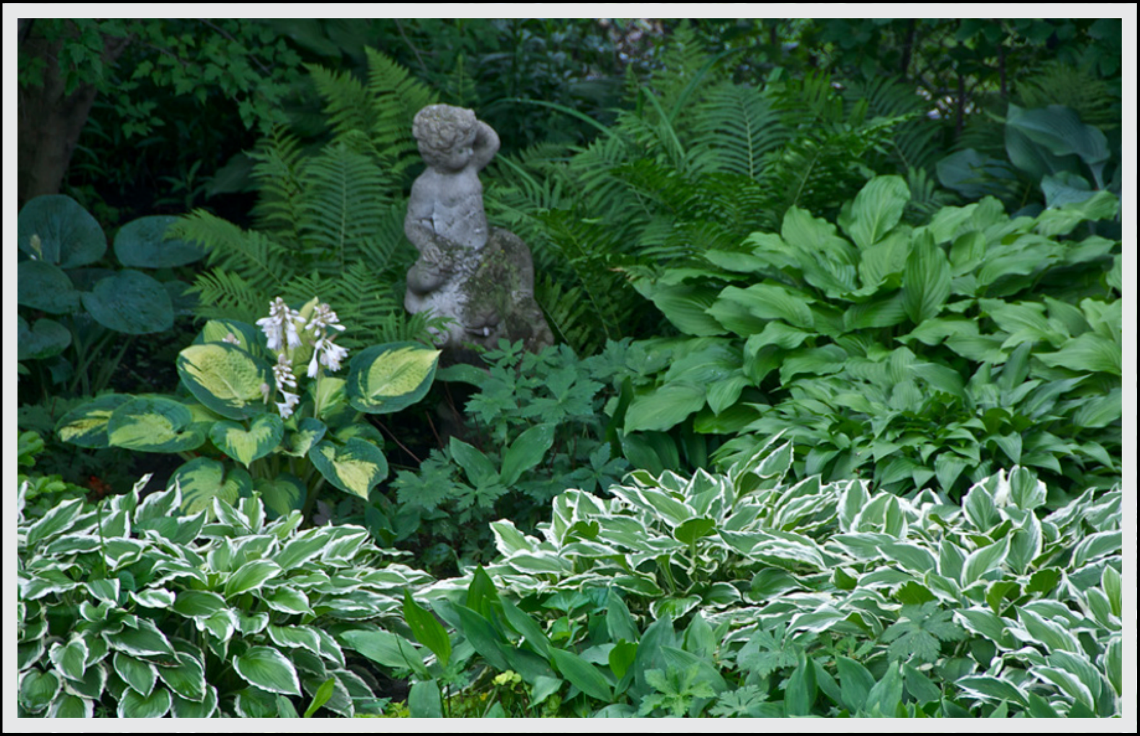
***Rosa* 'Graham Thomas' (see Chapter 9) is a stellar fully double yellow, low-care rose that also produces a delightful fragrance.**

Photo by S Pruden



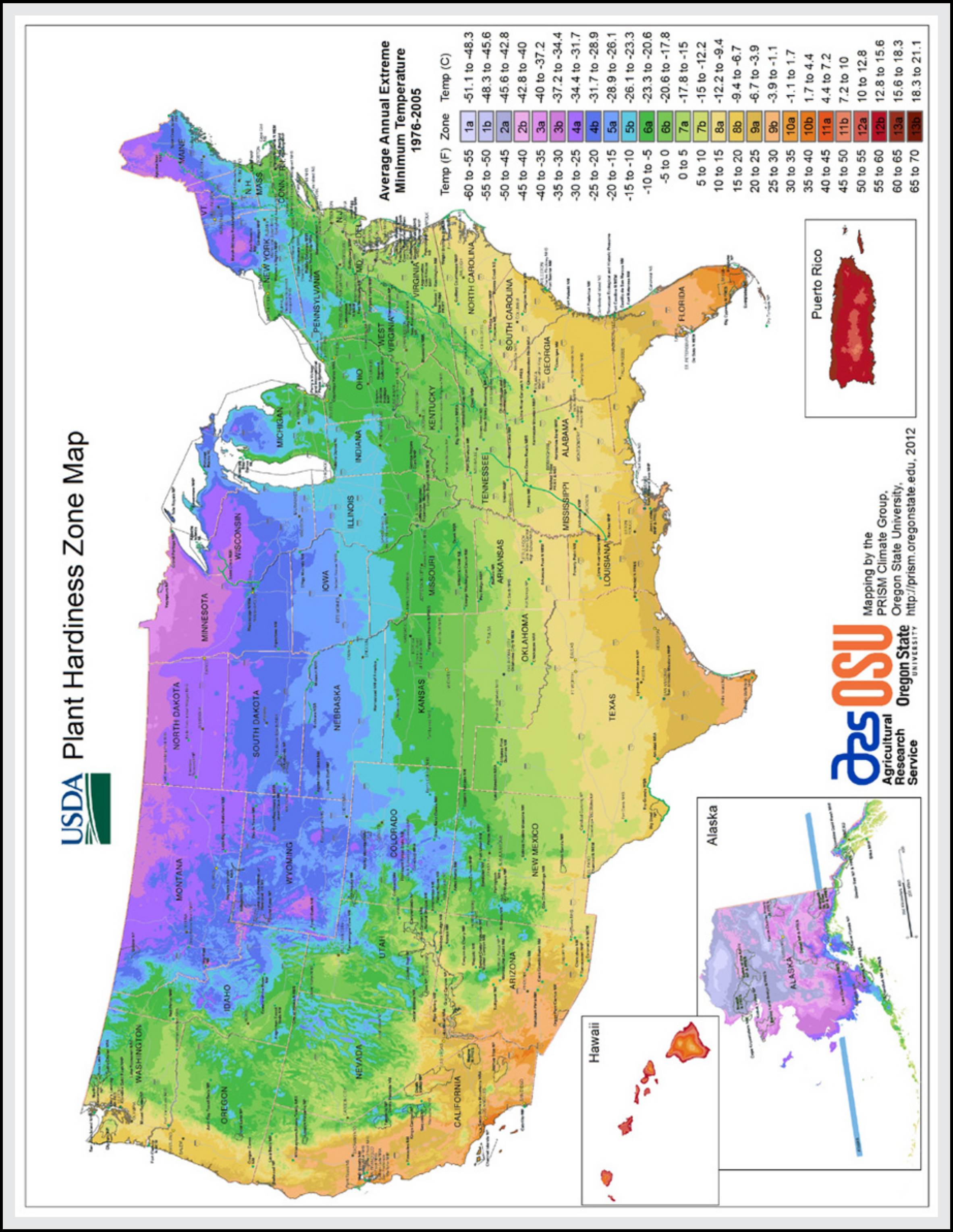
Cornus kousa **subsp.** ***chinensis*** **'Prophet,' Korean Dogwood (see Chapter 12) is gem of a small tree providing long lasting flowers, interesting fruit and fall color.**

Photo by Fleur569



This lovely hosta garden (see Chapter 7) shows just some of the many leaf color and variegations that make hostas a number one choice for any shady space in your garden.

www.usda.gov


USDA
Plant Hardiness Zone Map
Average Annual Extreme Minimum Temperature 1976-2005
Temp (F) Zone Temp (C)
-60 to -55 1a -51.1 to -48.3
-55 to -50 1b -48.3 to -45.6
-50 to -45 2a -45.6 to -42.8
-45 to -40 2b -42.8 to -40
-40 to -35 3a -40 to -37.2
-35 to -30 3b -37.2 to -34.4
-30 to -25 4a -34.4 to -31.7
-25 to -20 4b -31.7 to -28.9
-20 to -15 5a -28.9 to -26.1
-15 to -10 5b -26.1 to -23.3
-10 to -5 6a -23.3 to -20.6
-5 to 0 6b -20.6 to -17.8
0 to 5 7a -17.8 to -15
5 to 10 7b -15 to -12.2
10 to 15 8a -12.2 to -9.4
15 to 20 8b -9.4 to -6.7
20 to 25 9a -6.7 to -3.9
25 to 30 9b -3.9 to -1.1
30 to 35 10a -1.1 to 1.7
35 to 40 10b 1.7 to 4.4
40 to 45 11a 4.4 to 7.2
45 to 50 11b 7.2 to 10
50 to 55 12a 10 to 12.8
55 to 60 12b 12.8 to 15.6
60 to 65 13a 15.6 to 18.3
65 to 70 13b 18.3 to 21.1
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Alaska
Hawaii
WASHINGTON
OREGON
CALIFORNIA
IDAHO
NEVADA
MONTANA
WYOMING
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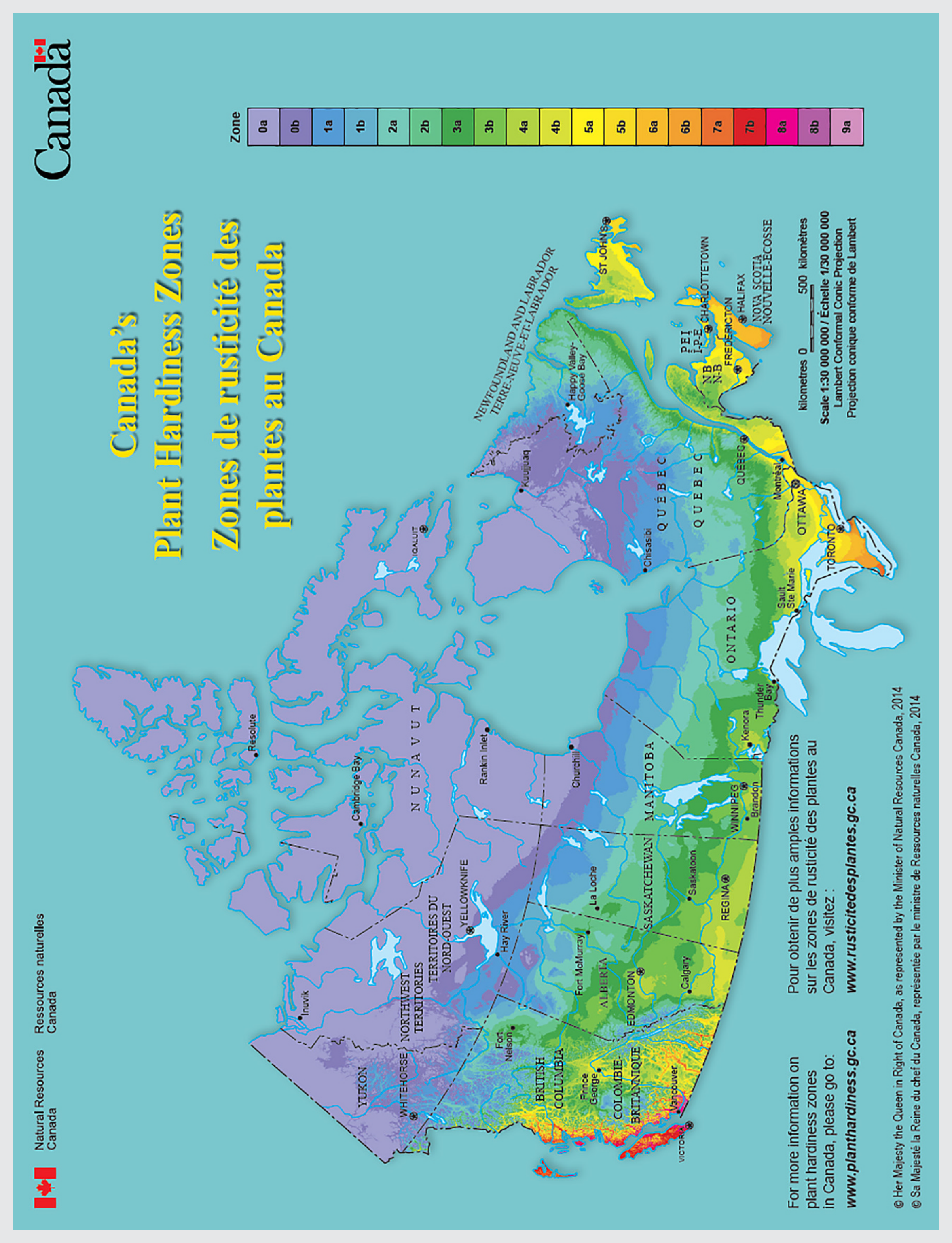
Agricultural Research Service
OSU Oregon State University
Mapping by the PRISM Climate Group, Oregon State University, http://prism.oregonstate.edu, 2012

This USDA Plant Hardiness Zone map (see Chapter 3) is a useful tool in determining which plants should be hardy (will overwinter) in your growing area.

http://planthardiness.gc.ca/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Zones de rusticité des plantes au Canada
Zone
0a
0b
1a
1b
2a
2b
3a
3b
4a
4b
5a
5b
6a
6b
7a
7b
8a
8b
9a
YUKON
WHITEHORSE
Inuvik
NORTHWEST TERRITORIES
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NB
N-B
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NOVA SCOTIA
NOUVELLE-ÉCOSSE
kilometres 0 500 kilomètres
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Projection conique conforme de Lambert

For more information on plant hardiness zones in Canada, please go to: *www.planthardiness.gc.ca*

Pour obtenir de plus amples informations sur les zones de rusticité des plantes au Canada, visitez : *www.rusticitedesplantes.gc.ca*

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This Canada Plant Hardiness map (refer to Chapter 3) is helpful for northern gardeners to choose plants that will survive the cold weather in their locality.

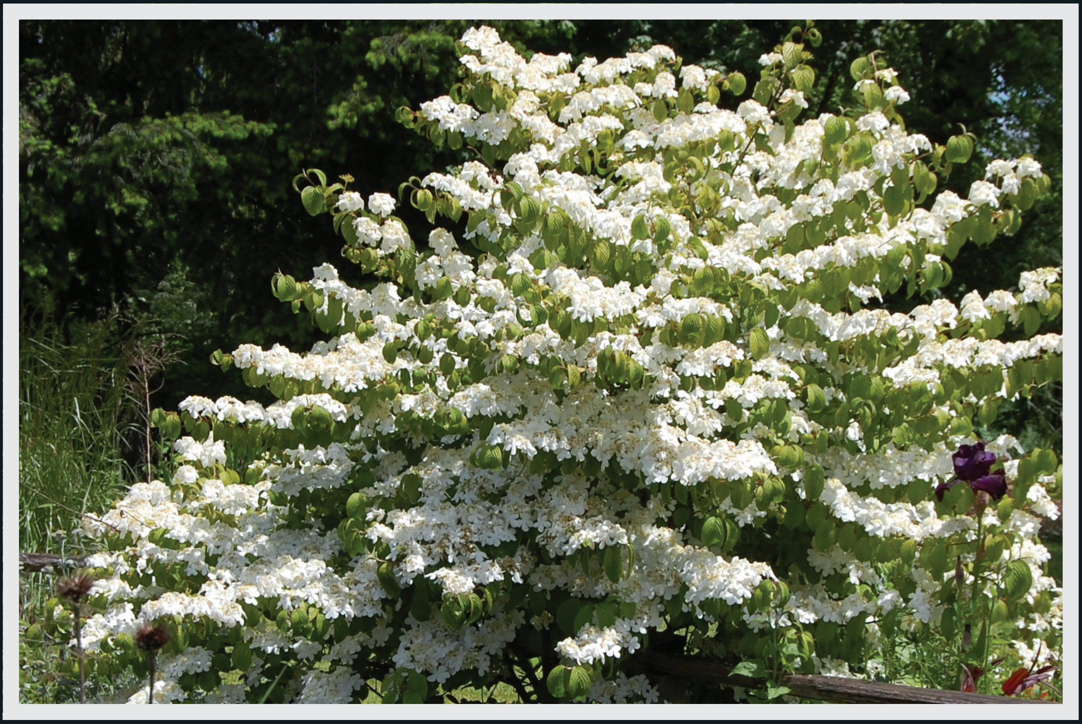
Photo by Vickie Goedde

Phlox divaricata **'Blue Moon,' Wild Blue Phlox (see Chapter 7) is a low-maintenance American native woodland plant that sports abundant soft blue flowers.**

Photo by Per William Hedberg

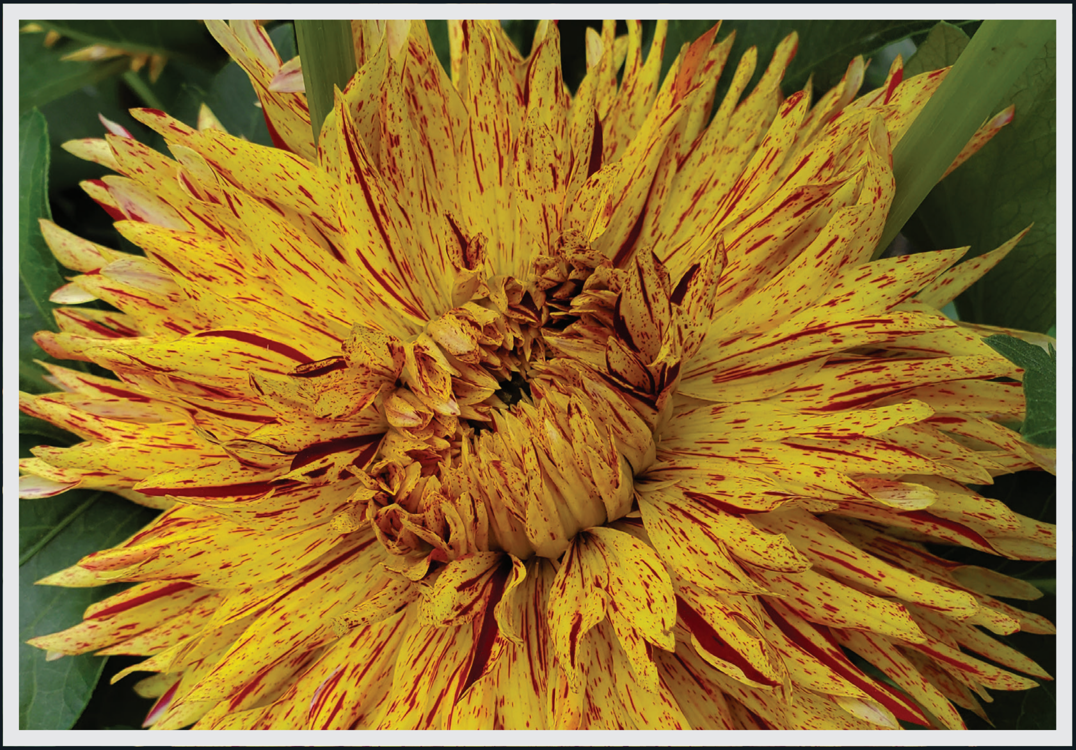
This gorgeous example of a tall bearded iris, called 'Gambling Man,' displays some of the myriads of colors and color combinations that make these tough perennials treasured.

Photo by Lynn Smith



***Viburnum plicatum* var. *tomentosum* ‘Shasta,’ Doublefile Viburnum (see Chapter 13) is blanketed with showy pristine white flowers in early to mid-summer.**

Photo by Stephe Schwinghamer



Dahlias come in an astounding range of colors, flower sizes, and flower types. This one, ‘Hollyhill Six in One,’ is particularly stunning.

Photo by Debbie Dolezar

***Rudbeckia hirta* ‘Autumn color,’ Black-eyed Susan, (see Chapter 7), a perennial, shows its brilliant long-lasting colors from mid-summer to frost.**

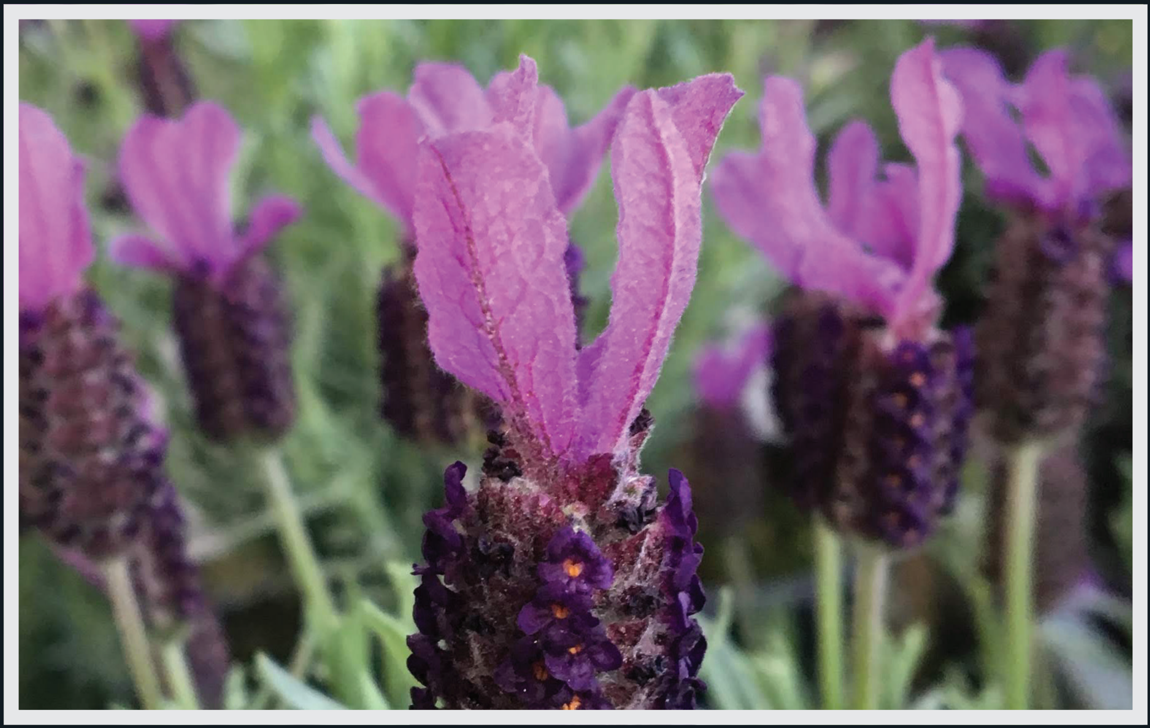
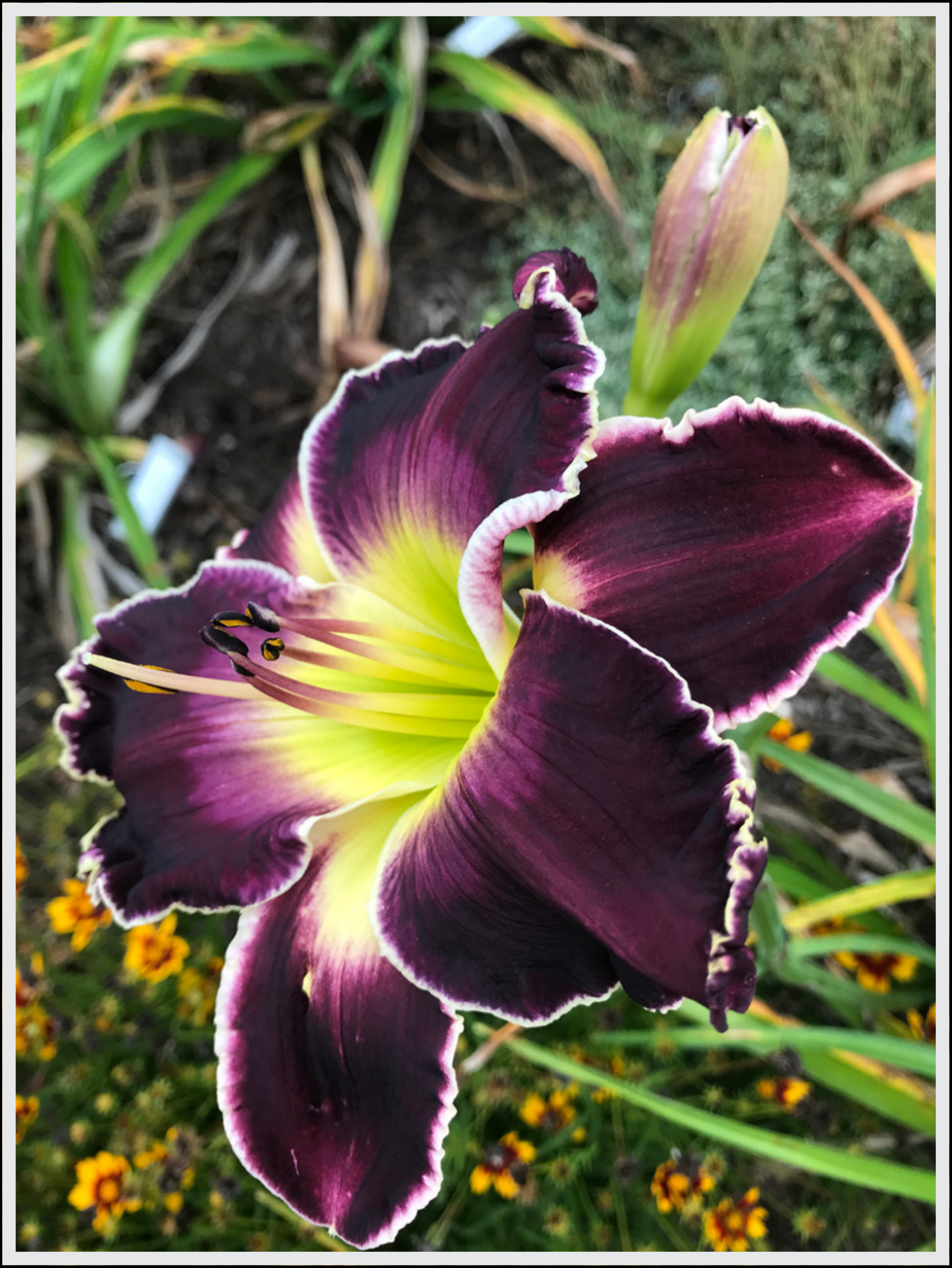


Photo by Ângelo Bueno Perillo III

***Lavandula stoechas,* commonly called French or Spanish Lavender is a great tender perennial that is enjoyed for its delightful scent and beautiful flowers.**

Photo by Ginny Geetings



'Soli Deo Gloria' daylily is just one example of the profuse and dazzling flowers that make daylilies garden favorites.

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